Canadian Environmental Assessment Agency
Agence canadienne d'évaluation environnementale

Howse Property Iron Mine Project

Environmental Assessment Report

April 2018

Canada

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Catalogue No: En106-208/2018E-PDF

ISBN: 978-0-660-26245-1

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This document has been issued in French under the title: Projet de mine de fer sur la propriété Howse – Rapport d'évaluation environnementale

Executive Summary

Howse Minerals Limited (the proponent) is planning to mine an iron ore deposit located in Newfoundland and Labrador, approximately 25 kilometres northwest of Schefferville, Quebec. The Howse Property Iron Mine (the Project) would involve developing an open-pit mine to produce 46 million tonnes of iron ore over a period of 15 years, with a maximum production rate of 25 000 tonnes of iron ore per day. The open pit would have a surface area of approximately 78 hectares and a maximum depth of 195 metres. The total footprint of the Project, including the open-pit, waste rock piles, overburden stockpiles, and other infrastructure, would be approximately 200 hectares. The mined ore would be trucked approximately 5 kilometres to an existing crushing and screening facility within the existing Direct Shipping Ore 3 processing complex. Once processed, ore would be loaded onto trains at the nearby rail loop and transported to Sept-Îles, Quebec, for shipment abroad. The estimated capital cost of the Project is approximately $100 million.

The Project is subject to a federal environmental assessment (EA) by the Canadian Environmental Assessment Agency (the Agency) under the *Canadian Environmental Assessment Act, 2012*, as it constitutes a designated activity under item 16(a) of the *Regulations Designating Physical Activities*:

> *the construction, operation, decommissioning and abandonment of a new metal mine, other than a rare earth element mine or gold mine, with an ore production capacity of 3000 tonnes/day or more.*

The Project was also subject to a provincial EA under Newfoundland and Labrador's *Environmental Protection Act*. The Agency and the Newfoundland and Labrador Department of Municipal Affairs and Environment coordinated their respective activities, to the extent possible, to align Indigenous and public consultation and to avoid duplication of effort. In March 2017, following its review of the *Environmental Preview Report*, the Province of Newfoundland and Labrador released the Project from further EA review, subject to certain conditions.

This EA Report summarizes the federal environmental assessment, including the information and analysis on the potential environmental effects of the Project considered by the Agency and the Agency's conclusions on whether the Project is likely to cause significant adverse environmental effects, after taking into account the implementation of mitigation measures.

The EA focused on features of the natural and human environment that may be adversely affected by the Project and that are within federal jurisdiction as described in subsection 5(1) of CEAA 2012, referred to as valued components. The Agency selected the following valued components for this EA:

- fish and fish habitat;
- migratory birds;
- physical or cultural heritage, and historical or archaeological sites or structures;
- the current use of lands and resources for traditional purposes;
- the health and socio-economic conditions of Indigenous peoples; and
- the transboundary environment.

The EA also considered the adverse effects of the Project on wildlife species listed in the *Species at Risk Act* and their critical habitat.

Fish and Fish Habitat

The Project has the potential to affect fish and fish habitat as a result of blasting and through changes to water quality and quantity. The Project is not expected to result in any direct loss of fish habitat.

The proponent would implement various measures to reduce the risk of blasting on fish and fish eggs, including limiting the number of blasts and limiting the total charge per blast. To reduce the Project's effects on water quality, the proponent would implement erosion and sediment control measures, including collecting site-water and treating it in sedimentation ponds prior to release. The proponent would also be required to comply with the *Metal Mining Effluent Regulations* and subsection 36(3) of the *Fisheries Act* regarding the deposit of effluent from the Project in water frequented by fish.

The proponent would regularly monitor water quality and quantity as well as fish and fish habitat in watercourses that could be affected by the Project, and would implement additional or modified mitigation measures if necessary.

Migratory Birds

The Project may directly affect migratory birds or may result in the loss or alteration of migratory bird habitat.

The Project would result in a small reduction of available habitat for migratory birds; however, none of the lost habitat is unique or critical for the survival of any bird species, and the amount of habitat lost would be small compared to the available habitat in the larger regional area. The proponent would control lighting and noise from the Project to further reduce any sensory disturbance to migratory birds. The proponent would also be required to carry out the Project in a manner that protects migratory birds and avoids harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests or eggs, in compliance with the *Migratory Birds Convention Act, 1994* and with the *Species at Risk Act*.

Physical or Cultural Heritage, and Historical or Archaeological Sites or Structures

The Agency focused its assessment primarily on the potential effects to Kauteitnat Mountain (also known as Irony Mountain or Heart Shaped Mountain). Kauteitnat is highly valued by Indigenous people for its role in current use activities and is considered a sacred landscape feature in the region that has cultural and spiritual significance. The Project would not affect the mountain itself, but has the potential to affect access to the mountain and the user's experience and sense of place.

The proponent would not undertake any activities on the mountain and would create a buffer zone between the base of the mountain and the Project to protect the physical integrity of the mountain itself. The proponent would also ensure access to the mountain is provided throughout the life of the Project and would implement measures to reduce sensory disturbances to users of the mountain, such as limiting noise, vibrations, and light; minimizing the size of waste rock piles; and remediating the site.

Current Use of Lands and Resources for Traditional Purposes

The Agency focused its assessment of the effects to the current use of lands and resources for traditional purposes on the following: access to lands and resources; subsistence and traditional caribou hunting; and other subsistence and traditional activities (e.g. small game and waterfowl hunting, fishing, trapping, berry/plant harvesting).

The Project has the potential to affect access by removing or altering current travel routes which are used to access land and resources. To mitigate the potential effects on access, the proponent would:

- upgrade and maintain a bypass road around the Project, which would allow continued access to areas used for traditional purposes, including Kauteitnat, Rosemary Lake, and Pinette Lake; and
- upgrade and maintain a bypass road around the Direct Shipping Ore 4 area (also referred to as the Kivivic and Goodwood mining sector) and restore access to preferred hunting grounds to the northwest of the Project.

The Project also has the potential to affect caribou populations and their recovery, which could in turn affect Indigenous peoples' ability to hunt caribou. Caribou hunting is important to local Indigenous populations, both for subsistence purposes and as an important component of their cultures. The recent decline in caribou populations in the region has greatly affected Indigenous communities' ability to hunt caribou. Given the timing of the Project, the limited current geographic range of the herd, and the low herd population, the Agency is of the view that the Project is unlikely to contribute to the decline of the herd, and that the Project's effects on caribou populations and their recovery would be low in magnitude. The proponent would nevertheless monitor caribou in the region and develop management measures and additional mitigation if caribou appear to be recovering and/or re-occupying the land around the Project.

The Project may also result in effects to other wildlife species, including fish and birds, but these effects would not sufficiently affect local populations to such an extent that they could impact Indigenous peoples' ability to harvest these resources.

The proponent would be required to develop a follow-up program in consultation with Indigenous groups to verify the nature and extent of the effects on current use of lands and resources for traditional purposes, to determine the effectiveness of mitigation measures, and to ensure ongoing and adaptive management of any unanticipated outcomes. In addition to and in conjunction with the follow-up program, the proponent would develop and implement a communications plan with Indigenous groups to ensure these groups are kept informed and are able to provide feedback on key issues related to the Project.

Health and Socio-economic Conditions of Indigenous Peoples

The Agency considered potential effects on both physiological health and measurable socio-economic conditions, as well as potential effects on broader individual and community health and wellness.

Potential residual effects to Indigenous peoples' physical health from project-related changes to the environment, including changes to country foods, water, and soils, would likely be low. The mitigation

measures that would be implemented by the proponent, including measures to control dust emissions and the use of sedimentation ponds to treat surface water, are appropriate and would reduce the risks to human health through pathways associated with consumption of or contact with country foods, water, or soils. To verify this, the proponent would also conduct a country food sampling program and would communicate the results of such a program to local Indigenous groups.

Project emissions, including dust generation, may also result in risks to human health and are an important issue to local Indigenous groups. The proponent would implement measures to reduce emissions, such as preventing and managing blast-generated nitrogen oxides and reducing dust generation. The residual risk to human health from inhalation of dust or airborne contaminants originating from the Project itself would likely be low. While health effects of dust are low risk, dust generated by the project may affect the well-being and day-to-day life of individuals in the region. To address the Project's contribution to dust generation in the region, the proponent would be required to implement mitigation measures, such as spraying roads, and would also develop, in consultation with local Indigenous groups and the Town of Schefferville, a dust management strategy to control dust generated by vehicles associated with the Project. The strategy could include the proponent's commitment to wash vehicles before entering the Town of Schefferville. The proponent would also monitor emissions, including dustfall, and apply modified or additional mitigation measures if required.

The Project could also affect the socio-economic conditions of local Indigenous communities if there is a decrease in Indigenous peoples' ability or desire to partake in traditional harvesting or other activities as a result of the Project. Mitigation measures, such as the maintenance of a bypass road to allow harvesters access to traditional territories, measures to reduce dust and other atmospheric emissions, and measures to reduce the Project's effects on caribou would reduce the Project's effects on the socio-economic conditions of Indigenous peoples. The proponent has also committed to contribute to a financial compensation fund to support subsistence and traditional activities. In addition, monitoring and follow-up measures, such as the commitment to conduct a country food monitoring program and the requirement to implement a communications plan with Indigenous communities, would also help to address ongoing concerns related to the socio-economic effects of the Project.

Transboundary Environment

The Project would emit approximately 67 000 tonnes of carbon dioxide equivalent per year during operation, which is a relatively low amount of greenhouse gas emissions compared to regional and national levels. However, the proponent would still have to report its emissions annually to Environment and Climate Change Canada and has committed to developing a greenhouse gas management plan.

Impacts on Potential or Established Aboriginal or Treaty Rights

The Agency also examined the Project's possible effects on potential or established Aboriginal or treaty rights. The Project could affect rights-based activities such as fishing, hunting, and trapping by Indigenous communities for traditional purposes. The Agency believes that the recommended measures to mitigate potential environmental effects on the valued components are appropriate measures to accommodate for potential impacts on rights.

Conclusions

The Agency has identified mitigation measures and follow-up activities for consideration as conditions to be included in the Decision Statement that may be issued by the Minister of Environment and Climate Change Canada. Conditions established by the Minister of Environment and Climate Change would become legally binding on the proponent if the Minister ultimately issues a Decision Statement indicating that the Project may proceed. The Agency concludes that the Project is not likely to cause significant adverse environmental effects, taking into account the implementation of the key mitigation measures.

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List of Abbreviations and Acronyms

Abbreviation/Acronym	Definition
Agency	Canadian Environmental Assessment Agency
CEAA 2012	*Canadian Environmental Assessment Act, 2012*
cm	centimetre
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DSO	Direct Shipping Ore
EA Report	Environmental Assessment Report
EA	environmental assessment
EIS	Environmental Impact Statement
the herd	George River Caribou Herd
kg	kilogram
km	kilometre
m	metre
mm	millimetre
NOx	nitrogen oxide
Project	Howse Property Iron Mine Project
proponent	Howse Minerals Limited
TSMC	Tata Steel Minerals Canada Ltd

Glossary

Term	Definition
DSO plant complex	The Direct Shipping Ore (DSO) 3 plant complex where ore from the DSO projects is processed and where the Howse mini-plant would be located.
DSO projects, DSO facilities, DSO infrastructure, DSO pits	All of the Direct Shipping Ore (DSO) projects either in operation or proposed by Howse Minerals Limited or Labrador Iron Mines in the greater Shefferville, Quebec, area.
DSO project complex	Direct Shipping Ore (DSO) 3 project and related facilities, and includes the plant complex, workers' camp, and rail facility.
DSO rail facility	Existing rail facility associated with the Direct Shipping Ore (DSO) 3 project.
DSO4 area	Kivivic and Goodwood mining sector located approximately 10 km northwest of the Project.
Health, Safety, and Environment Committee	The Health, Safety, and Environment Committee was established by the proponent in 2013 and includes representation from the Nation Innu Matimekush-Lac John, the Naskapi Nation of Kawawachikamach, Innu Takaikan Uashat mak Mani-Utenam, the Innu Nation, and the NunatuKavut Community Council. In its current form, the committee tries to meet three to four times per year and is a forum for open discussions and raising issues related to health, safety and the environment.
HowseA sedimentation pond	The new sedimentation pond that would be constructed and used to collect water with discharge into Goodream Creek.
Howse mini-plant	The primary processing facility to be built within the DSO plant complex, and which would process ore from the Howse pit.
Kauteitnat	Kauteitnat, or Irony Mountain, is a geological feature and important topographic landmark, the base of which is located approximately 500 m to the west of the Project. The mountain has always been an important observation hill for locating caribou and other species, and is considered a sacred site and one of significant cultural importance for the Innu of Matimekush-Lac John and Uashat mak Mani-Utenam.
Land Use Study	*Study on Land and Resource Use by the Innu and Naskapi*, which was prepared by the proponent and submitted as an appendix to the EIS.
Land Use Study area	The study area defined in the *Study on Land and Resource Use by the Innu and Naskapi*, as a 113 square kilometre area roughly centered on the Project which includes a series of lakes surrounding the project area (e.g. Morley Lake, Goodream Lake, Triangle Lake, Burnetta Lake, Rosemary Lake, and a section of the Howells River shoreline), numerous other land use sites identified in the area, and the trails and access routes used.
Particulate matter	Any solid and liquid particles suspended in air, including organic and inorganic particles such as dust pollen, soot, smoke, and liquid droplets.
Project area	A 2.5 by 2 kilometre area that encompasses the project footprint and adjacent areas.
Project footprint	An approximately 200 hectare area which includes the total area that would be disturbed or otherwise occupied by project infrastructure and components.
Species at risk	Species listed under the *Species at Risk Act* or assessed by the Committee on the Status of Endangered Wildlife in Canada.
Tata Steel Minerals Canada Ltd.	The parent company and whole owner of Howse Minerals Limited.
Workers' camp	The workers' camp associated with the DSO3 project.

1 Introduction

1.1 Purpose of the Environmental Assessment Report

The purpose of the Environmental Assessment (EA) Report is to provide a summary of the information and analysis considered by the Canadian Environmental Assessment Agency (the Agency) in reaching its conclusion on whether the Howse Property Iron Mine Project (the Project) is likely to cause significant adverse environmental effects, after taking into account the proposed mitigation measures. The Minister of Environment and Climate Change will consider this report and comments received from Indigenous groups and the public in making a decision on whether the Project is likely to cause significant adverse environmental effects, following which the Minister will issue an EA Decision Statement.

Howse Minerals Limited (the proponent) is planning to develop an iron ore deposit with the support of adjacent, existing mining infrastructure. The deposit is located in Labrador, 25 kilometres (km) northwest of Schefferville, Quebec. The Project involves developing an open-pit mine with a maximum production rate of 25 000 tonnes of iron ore per day. The mine would produce approximately 46 million tonnes of iron ore over a period of 15 years. The open pit has a projected surface area of 78 hectares and maximum depth of 195 metres (m). The mined rock would be trucked approximately 5 kilometres to a crushing and screening facility, located near an existing rail loop on the Tata Steel Minerals Canada Ltd. property, referred to as the Direct Shipping Ore (DSO) project complex. Once processed, the ore would be transported by train to Sept-Îles, Quebec, where it would be loaded onto marine vessels and shipped to market. The estimated capital cost of the Project is $100 million.

The proponent is a wholly owned subsidiary of Tata Steel Minerals Canada Ltd., which is a joint venture between Tata Steel Ltd. (80% share) and New Millennium Iron Corp (20% share).

1.2 Scope of Environmental Assessment

1.2.1 *Environmental assessment requirements*

On April 6, 2014, based on the Project Description submitted by the proponent, the Agency initiated a screening of the designated project to determine if an EA was required. On April 17, 2014, the Agency invited the public and Indigenous groups to provide comments on the designated project and its potential environmental effects. On June 2, 2014, the Agency determined that an EA was required. The EA commenced on June 3, 2014.

Requirements of the Canadian Environmental Assessment Act, 2012

The Project is subject to an EA by the Agency under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), as it constitutes a designated activity under item 16(a) of the schedule to the *Regulations Designating Physical Activities*:

The construction, operation, decommissioning and abandonment of a new metal mine, other than a rare earth element mine or gold mine, with an ore production capacity of 3000 tonnes/day or more.

The following federal acts and regulations could apply to the Project:

- *Fisheries Act*
  - *Metal Mining Effluent Regulations*
- *Migratory Bird Convention Act*
- *Species at Risk Act*

Cooperative Environmental Assessment Requirements

In addition to being subject to an EA under CEAA 2012, the proponent was required to prepare an Environmental Preview Report pursuant to Newfoundland and Labrador's *Environmental Protection Act*. The Agency and the Province of Newfoundland and Labrador conducted the EAs in cooperation to the fullest extent possible. The proponent submitted a single document which satisfied both the provincial requirement for registration and the federal requirement for submission of a Project Description. A single document was also submitted which satisfied the provincial requirement for an Environmental Preview Report and the federal requirement for an Environmental Impact Statement (EIS). The public and Indigenous comment period on the Project Description and Registration Document was also coordinated. In addition, the federal and provincial governments shared comments, advice, and correspondence from expert departments and Indigenous groups, as appropriate. On March 21, 2017, the Province of Newfoundland and Labrador finished its EA by releasing the Project from further provincial EA requirements, subject to conditions.[1]

1.2.2 *Factors considered in the environmental assessment*

Pursuant to subsection 19(1) of CEAA 2012, the Agency considered the following factors in the EA of the Project:

- the environmental effects of the Project, including the environmental effects of malfunctions or accidents that may occur in connection with the Project and any cumulative environmental effects that are likely to result from the Project in combination with other physical activities that have been or would be carried out;
- the significance of the effects;
- comments from Indigenous groups, as well as traditional knowledge;
- mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project;
- the requirements of a follow-up program in respect of the Project;

[1] The project release statement and conditions are available on the Newfoundland and Labrador Department of Municipal Affairs and Environment's website at the following link: http://www.mae.gov.nl.ca/env_assessment/projects/Y2014/1751/index.html.

- the purpose of the Project;
- alternative means of carrying out the Project that are technically and economically feasible and the environmental effects of any such alternative means;
- any change to the Project that may be caused by the environment; and
- species listed under the *Species at Risk Act* or assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

1.2.3 *Selection of valued components*

Valued components are environmental and socio-economic features of the environment that may be affected by the Project and that have been identified to be of concern by the proponent, government agencies, Indigenous groups or the public. The valued components were used to focus the EA and the associated analysis.

In its analysis, the Agency considered valued components pertaining to the prediction of environmental effects as defined in subsection 5(1) of CEAA 2012, as well as the adverse effects of the Project on wildlife species listed under the *Species at Risk Act* and their critical habitat and effects on species assessed by the Committee on the Status of Endangered Wildlife in Canada.

Additional valued components pertaining to environmental effects defined in subsection 5(2) of CEAA 2012 were not considered because no additional federal decisions or authorizations are anticipated in relation to the Project.

Table 1 identifies the valued components and associated rationale for their inclusion in the EA:

Table 1 Valued Components Selected by the Agency

Valued Component	Rationale
Effects identified pursuant to subsection 5(1) of CEAA 2012	
Fish and fish habitat	Changes in water quantity and quality, noise, and vibration may affect fish and fish habitat.
Migratory birds	Changes in noise and light levels, and the disturbance of terrestrial, aquatic and wetland habitat may affect migratory bird mortality and behaviour.
Physical or cultural heritage, and historical or archaeological sites or structures	Changes to the terrestrial and atmospheric environments and changes in access to lands may affect physical and cultural resources of Indigenous peoples or historical or archaeological sites or structures.
Current use of lands and resources for traditional purposes	Changes to the atmospheric, aquatic and terrestrial environments may affect the use of lands and resources for traditional purposes by Indigenous peoples.
Health and socio-economic conditions of Indigenous peoples	Changes to the atmospheric, terrestrial, and aquatic environments, and changes to country foods may affect the health and socio-economic conditions of Indigenous peoples.
Transboundary environment	Emissions of greenhouse gases may contribute to climate change.

Valued Component	Rationale
Effects identified pursuant to subsection 79(2) of the *Species at Risk Act*	
Species at risk[2]	Disturbance of terrestrial and aquatic environments could affect species at risk and their critical habitat.

1.2.4 *Spatial and temporal boundaries*

Spatial and temporal boundaries of an EA are established to define the area and timeframe within which a project may interact with the environment and cause environmental effects. The spatial and temporal boundaries may vary among valued components depending on the nature of the potential project's interaction with the environment.

The local and regional study areas, as well as the temporal boundaries for each valued component, as described by the proponent, are summarized in Table 2.

Table 2 Spatial and Temporal Boundaries for Valued Components as Described by the Proponent

Valued Component	Local Study Area	Regional Study Area	Temporal Boundaries
Fish and fish habitat	Triangle Lake, Pinette Lake, and Burnetta Lake watersheds	Elross Creek and Lone Lake watershed, including Sunset and Goodream Creeks. This area includes all drainage coming from other potential projects in the area and ultimately draining into the Howells River. Covers an area of 335 square kilometres.	Construction, operation, decommissioning, and rehabilitation phases and three years post-decommissioning
Migratory birds	Triangle Lake, Pinette Lake, and Burnetta Lake watersheds	30 km radius surrounding the project area.[3]	Construction, operation, decommissioning, and rehabilitation phases
Physical or cultural heritage, and historical or archaeological sites or structures	The area located near the Project, including Kauteitnat (also known as Irony Mountain)	This area was not defined because effects would be limited to the local study area.	Construction and operation phases
Current use of lands and resources for traditional purposes	Includes the following communities: • Naskapi Nation of Kawawachikamach • Nation Innu Matimekush-Lac John	This area was not defined because effects would be limited to the local study area.	Construction, operation, decommissioning, and rehabilitation phases

[2] In the context of this report, species at risk are defined as species listed under the *Species at Risk Act* or assessed by the Committee on the Status of Endangered Wildlife in Canada.

[3] The project area is a 2.5 by 2 kilometre area that encompasses the project footprint and adjacent areas.

Valued Component	Local Study Area	Regional Study Area	Temporal Boundaries
	• Land-users from the Town of Schefferville • Innu Takuaikan Uashat mak Mani-Utenam		
Health and socio-economic conditions of Indigenous peoples	**Health** An area of 340 square kilometres centered on the Project, as defined in the air dispersion model **Population and Community** Includes the following communities: • Naskapi Nation of Kawawachikamach • Nation Innu Matimekush-Lac John • Town of Schefferville	**Health** Howells River watershed and the Schefferville region, including: • Labrador West (Labrador City and Wabush), as well as the Innu Nation • Ville de Sept-Îles • Innu Takuaikan Uashat mak Mani-Utenam **Population and Community** Includes the following communities: • Labrador West (Labrador City and Wabush) • The Innu Nation and Nunatukavut Community Council • Ville de Sept-Îles • Innu Takuaikan Uashat mak Mani-Utenam	**Health** • Construction and operation phases • For potential health effects related to cancer, a human lifetime was considered as the temporal boundary **Population and Community** Construction, operation, decommissioning, and rehabilitation phases
Transboundary environment	A 30 km radius centered on the Project	The climate region of central Ungava	Construction, operation, decommissioning, and rehabilitation phases

1.2.5 *Methods and approach*

The Agency reviewed various sources of information in conducting its analysis, including:

- the EIS submitted by the proponent;
- additional information submitted by the proponent at the Agency's request during the review of the EIS;
- advice from expert federal and provincial departments and agencies; and
- comments received from Indigenous participants.

The Agency's conclusions on whether the Project is likely to cause significant adverse environmental effects are presented using the methodology prescribed in the Agency's *Operational Policy Statement on Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the Canadian Environmental Assessment Act, 2012.*

The potential environmental effects of project activities and components were assessed using a standard framework to facilitate individual assessment of each valued component. To determine the significance of residual effects on valued components, the Agency used the assessment criteria proposed by the proponent, which included:

- Magnitude: Relative importance of the consequences of a project-related effect on the structure or function of a valued component.
- Geographic extent: Area of land or distance over which a given valued component would be affected.
- Timing: Consideration of the timing of an effect (e.g. species breeding season, Indigenous spiritual and cultural practices).
- Frequency: How often the environmental effect occurs within a given time period.
- Duration: Time period over which the environmental effect would be observed.
- Reversibility: Probability that a valued component would be able to return to its original state (prior to the environmental effect) over the life of the Project or beyond.

The Agency also considered context for all valued components and across all the criteria listed above. Context refers generally to the current state of the valued component and its sensitivity and resilience to the change caused by the Project.

The Agency used a grid to help determine the significance of the effects (Appendices A and B), which combines the degree (low, moderate, or high) of the residual effect of each criteria. With the help of the grid, the Agency was able to make an overall assessment of the significance of the residual effect on each valued component. The degree of residual effect is determined by taking into consideration the mitigation measures (including the compensation programs) proposed by the proponent (Appendix C) and all measures considered necessary by the Agency (Appendix D).

The Agency's analysis and conclusions on the significance of environmental effects on valued components are presented in Section 7.

2 Project Overview

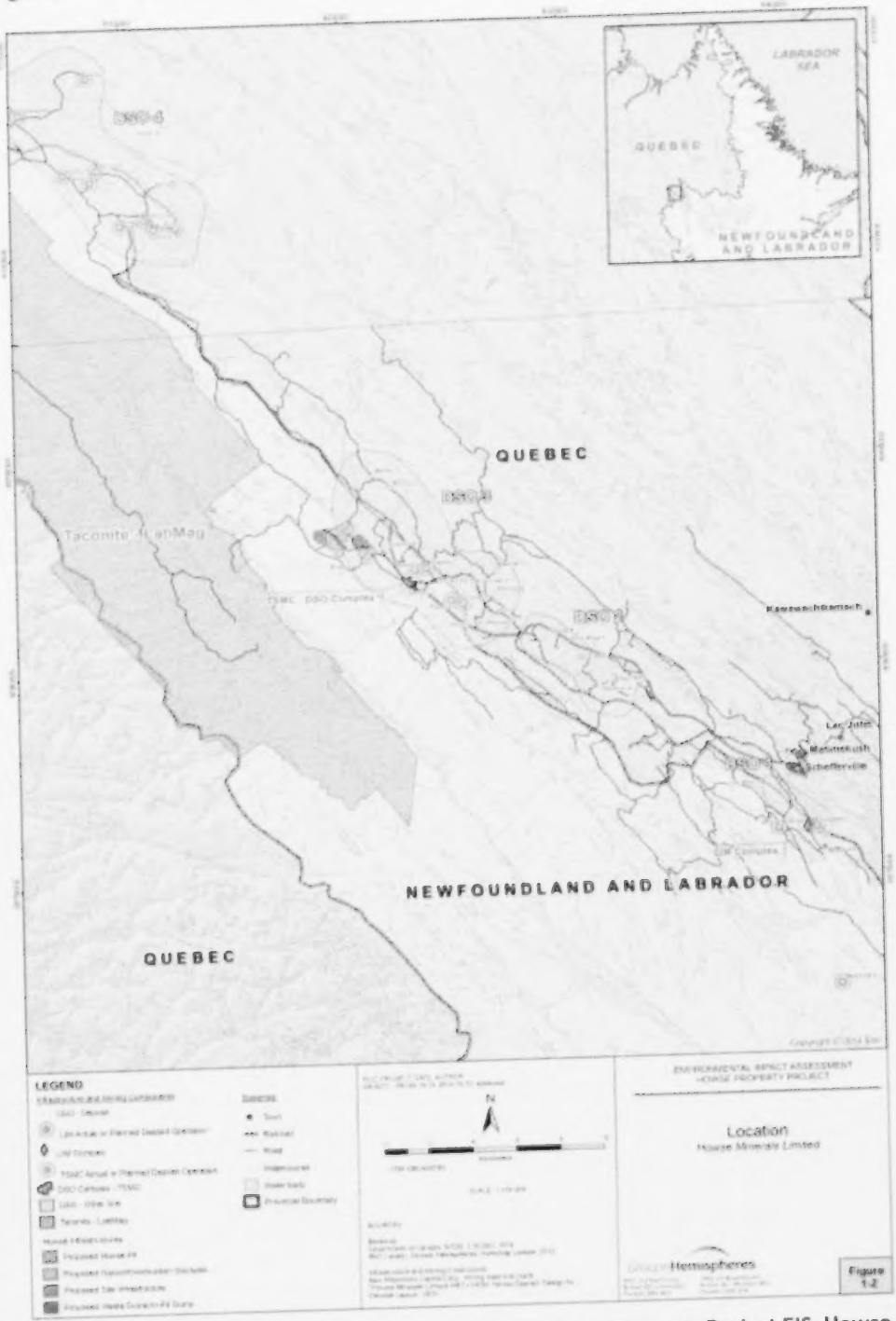
2.1 Project Location

The Project lies entirely within the Province of Newfoundland and Labrador and is located 25 kilometres northwest of Schefferville, Quebec. Figure 1 shows the geographical location of the Howse Property in relation to Tata Steel Minerals Canada Ltd.'s other projects and existing infrastructure. The total project footprint[4] would be approximately 200 hectares.

The pit would be located approximately 500 metres northeast from the base of Kauteitnat (also known as Irony Mountain). Kauteitnat is an important topographical feature in the local area, and its historic and contemporary use as a landmark and its role as an observation point for caribou hunting are valued by local Indigenous communities.

[4] The project footprint is an approximately 200 hectare area which includes the total area that would be disturbed or otherwise occupied by project infrastructure and components.

Figure 1 **Project Location**



Source: Howse Property Project EIS, Howse Minerals Limited

2.2 Project Components

The Project includes the following components (Figure 2):

Open Pit

Covering a surface area of approximately 78 hectares, the open-pit dimensions would be approximately 1600 metres long and 450 metres wide at the top, with a maximum depth of 195 metres. The open pit would have walls with slopes between 35 degrees (overburden layer), 40 degrees (iron deposit below the water table), and 45 degrees (iron deposit above the water table). The pit would be constructed with 10 metre high benches through the iron deposit with a minimum width of 6.5 metres.

New Site Infrastructure

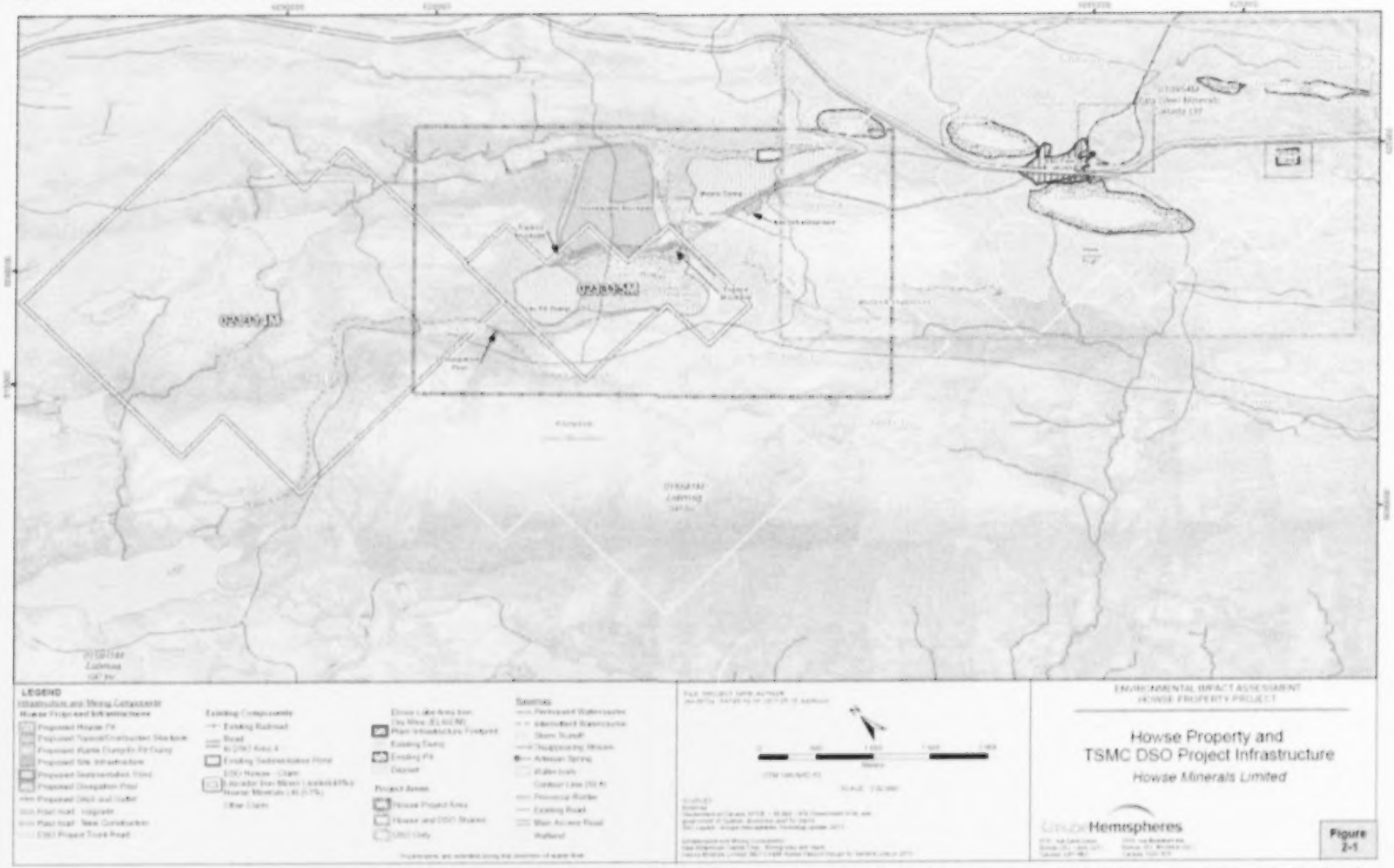
A cleared area would house three trailers used for washroom, office, and lunchroom facilities, and a parking area. For site lighting, mobile diesel-powered lights would be used as required.

Stockpiles and Waste Rock Piles

The Project includes separate topsoil and overburden stockpiles. Waste rock would be stored either within mined-out portions of the open pit or in a pile outside the pit. Organic material and topsoil from the pit and other disturbed areas would be stripped and used for site reclamation. All piles and stockpiles would have a perimeter ditch to capture water runoff that would be directed into sedimentation ponds. Acid-generating material is not expected, but if encountered would be stockpiled separately. Some waste rock and overburden materials would likely be salvaged for road upgrading and maintenance. The maximum dimensions of the piles and stockpiles would be as follows:

- Overburden stockpile: maximum height 60 metres; footprint 63.5 hectares;
- Waste rock pile: maximum height 60-70 metres; footprint 39 hectares;
- Topsoil stockpile: maximum height 12 metres; footprint three hectares.

Figure 2 **Project Components and Site Layout**



Source: Howse Property Project EIS, Howse Minerals Limited

Howse Haul Road

The Howse haul road would connect the pit to an existing road near the Timmins 4 deposit and consist of 1.2 kilometres of new road over a disturbed area and 0.95 kilometres of upgraded road. The road would include ditching to collect runoff.

Bypass Roads

The proponent proposes to upgrade and maintain a bypass road to replace the permanent removal of a section of road used by Indigenous peoples to access lands for traditional purposes. The bypass road roughly follows the provincial border northeast of the project area and connects to the existing Timmins-Kivivic Road to the north of the Project. The Timmins-Kivivic Road then travels back toward the Project, splitting off to allow access to both Pinette Lake and Howells River (refer to Section 3.2 for additional detail on the bypass road). The proponent would not assume ownership of the bypass road, but is committed to its maintenance bi-annually to facilitate Indigenous peoples' access to the land.

The proponent would also upgrade and maintain a road which would allow users to bypass the DSO4 area (also referred to as the Kivivic and Goodwood mining sector). This bypass road is not required for the Project itself, but would serve as an accommodation measure by restoring access to preferred hunting grounds northwest of the Project.

Water Management Infrastructure

The proponent's approach to water management would consist of collecting and treating surface runoff and pit water. Water would be collected via a network of surface ditches and through the use of in-pit dewatering pumps. The surface runoff and pit water would be conveyed to one of two, unlined sedimentation ponds (one of which would be built by the proponent, and one of which already exists). A ditch located along the northwest edge of the pit would also intercept surface water runoff before it reaches the site. The surface drainage facilities have been designed to handle peak conditions equivalent to a 25-year flood event.

Potable water would come from the treatment unit at the DSO workers' camp.

Howse Mini-Plant

The proponent would construct a mini-plant at the DSO plant complex, next to the existing rail loop. The mini-plant would be constructed on a previously disturbed site, and have a footprint of approximately 1.5 hectares. Ore from the Howse pit would be trucked to the mini-plant for primary processing (crushing, drying, and screening). Equipment would be powered by a generator at the DSO plant complex.

Existing Facilities

Existing DSO infrastructure that may be used by the Project includes:

- ore storage areas;
- wash plant building and ore dryer (these may be used instead of the Howse mini-plant to process low-grade ore from the Project during the end-stages);

- rail loop loading system and existing railway track;
- workers' camp (including sewage system);
- administration buildings and office space, wash facilities, laboratory and a small cafeteria;
- warehouse;
- workshop;
- garages; and
- landfill.

2.3 Project Activities

Key activities and schedules associated with construction, operation, decommissioning and reclamation, and post-closure of the Project are listed below.

Site Preparation and Construction (7-10 months)

The site preparation and construction phase involves the following activities:

- Upgrading and constructing the Howse haul road and upgrading the bypass roads, including vegetation stripping and excavation.
- Pit development, including:
  - vegetation clearing, stripping, and grubbing;
  - creation of a waste rock pile, overburden stockpile, topsoil stockpile, and water management infrastructure (sedimentation pond, dissipation pool, drainage ditches); and
  - blasting.
- Construction of the Howse mini-plant.
- Transportation and traffic activities, including transportation of all equipment, fuel, and personnel to the Howse pit from the DSO plant complex and workers' camp (total traffic could reach four one-way trips per hour). The distance between the Project and the DSO plant complex is approximately 2.5 km.

Operation (15 years)

The proponent stated it would apply both conventional and in-pit mining techniques during operation and indicated this mixed method would allow for the accumulation of a large portion of the waste material within the mined portion of the pit. The proponent reported that the mine would operate year-round with the ore mined, crushed, and screened from April to October or November, with day and night shifts. Overburden stripping would occur during the remaining months along with work to progressively restore overburden stockpiles and waste rock piles. Ore shipment would continue through all seasons.

The proponent stated that the operation phase would involve the following activities:

- Removal and storage of overburden and waste rock, including:

- continual blasting (if required) and removal of an average of approximately 3.1 million tonnes per year of overburden and 3.6 million tonnes per year of waste rock over the 15 years of mine life;
- storing overburden and waste rock separately;
- accumulating waste rock both outside the pit in a waste rock pile and in mined-out sections of the pit itself;
- partially re-using overburden when restoring the site; and
- using both overburden and waste rock for site work, such as construction and maintenance of the Howse haul road.

- Ore extraction and blasting, including:
  - blasting approximately once per week during the summer and infrequently during winter (only if frozen ground or hard rock are encountered during winter overburden removal);
  - blasting using bulk emulsion explosives. Explosive consumption is estimated at about 22 000 kg per week. The proponent estimated that only 50% of the ore would require blasting due to the softness of the ore at the Howse property;
  - storing blasting materials in existing magazines (separate units for detonators and primers) at the DSO plant complex. Mixing explosive slurry, consisting of ammonium nitrate and fuel oil, would occur only in the blast holes within the pit;
  - loading ore onto trucks using excavators for transportation to the mini-plant; and
  - refueling heavy machinery on-site by fuel truck. All mining equipment would be diesel-powered. Refueling light vehicles and trucks would occur at the DSO project complex.

- Mineral processing, including:
  - crushing and screening both low-grade and high-grade ore at the mini-plant. High-grade ore represents around 80% of the mineral resource while low-grade ore represents around 20%. Ore processing would begin at a rate of approximately 1.304 megatonnes per year and reach a maximum rate of approximately 9.13 megatonnes per year by year nine of operations;
  - mixing low-grade and high-grade ore to achieve suitable grade for shipping;
  - primary processing of excavated ore (i.e. crushing and screening) to produce a final product containing 15% lumps and 85% sinter fines;
  - drying ore to reduce its water content. Ore would be dried on an as-needed basis, prior to screening and/or prior to shipping; and
  - during winter months, possibly adding the polymer Ironsorb to processed ore prior to shipping to absorb excess moisture and comply with Transport Canada's regulations on transportable moisture limits.

- Surface water collection, mine dewatering, and water treatment, including:
  - using in-pit dewatering wells to dewater the pit;

- ongoing dewatering once the water table depth is reached. The mine dewatering rate is expected to be lower during the first years of mining operations until the pit depth reaches the water table;
- collecting surface water runoff from the site via a network of ditches and directing runoff into one of two sedimentation ponds;
- using sedimentation ponds to remove suspended solids from surface water prior to discharge into Goodream Creek;
- using a ditch located along the northwest edge of the pit to intercept surface water runoff before it reaches the site and redirecting it to a dissipation pool for release into Brunetta Creek;
- conducting ongoing water monitoring activities to determine the effectiveness of treatment. The proponent does not anticipate having to use an inorganic coagulant to treat water prior to discharge, but would implement such a treatment if water quality issues are encountered; and
- assessing the requirement for sediment removal and management from the sedimentation ponds, and determining the frequency of such activities.

- Transportation of ore and other traffic, including:
  - transporting mined ore by truck from the Howse pit to the mini-plant at the DSO plant complex. During the operations phase, 12 to 16 one-way vehicle trips per hour are expected. Average vehicle speed would be 30 kilometres per hour along the Howse haul road; and
  - loading ore (upon completion of crushing and screening) onto rail cars and transporting it to the port of Sept-Îles, Quebec. During the months of the year that ore is extracted from the Howse pit (April to October or November), two trains per day (on average) would depart the DSO rail facility. These trains would also carry material from the concurrent operation of the DSO pits. Overall rail traffic along the route between the DSO rail loop and the Port of Sept-Îles would increase by an average of one train per day.

- Waste management and disposal, including:
  - disposing of domestic solid waste at Tata Steel Minerals Canada Ltd.'s approved landfill site within the DSO project complex;
  - storing hazardous waste, including used oil, in receptacles, separated where necessary, at Tata Steel Minerals Canada Ltd.'s DSO project complex; and
  - transferring sanitary wastewater from mobile toilets to the treatment unit at the DSO workers' camp.

- Progressive rehabilitation, including:
  - decommissioning any temporary work sites or access roads once no longer needed; and
  - using stockpiled topsoil for progressive restoration activities.

Decommissioning and Reclamation Phase (5 years)

The decommissioning and reclamation phase involves the following activities:

- transportation of equipment and personnel;
- relocating crushing and screening facilities, and heavy machinery to be used for a different project;
- closing the pit, including:
    - allowing the pit to flood naturally from groundwater inflows, snowmelt, and rainfall. The proponent predicts that stabilization of the pit lake levels and a full recovery of groundwater levels around the pit may take more than four years; however, initial recovery would be relatively quick and reach almost 80% within the first year after mine dewatering stops;
    - re-grading pit benches, as required, to facilitate revegetation;
    - re-grading and contouring the perimeter collection ditches;
    - blocking the pit ramp using berms;
    - placing rock barricades 10 metres from the edge of the pit to act as a warning and protective barrier to prevent people and vehicles from going over the edge; and
    - posting warning signs approximately 15 metres apart around the pit perimeter;
- restoring the new sedimentation pond. The proponent would examine various options for its restoration, including the creation of wildlife ponds, wetlands, or in-filling;
- undertaking a characterization of potentially contaminated sites in the vicinity of the Project. Spill sites or other contaminated mining areas could require soil rehabilitation; and
- stabilizing and revegetating the waste rock piles and overburden stockpiles. The proponent expects to revegetate 100% of the overburden stockpile surface areas. However, due to challenges associated with local conditions, waste rock piles may not be completely revegetated. The proponent would evaluate revegetation efforts during progressive rehabilitation and examine additional measures, as required.

3 Purpose of Project and Alternative Means

3.1 Purpose of Project

The purpose of the Project is to secure a steady supply of high-quality iron ore at an economical price for sale to markets in Europe or Asia. The proponent intends to seize the opportunity of easy access to pre-existing infrastructure at Tata Steel Minerals Canada Ltd.'s DSO project complex, including the rail line, workers' camp, access road, explosives storage area, and mining equipment. As such, the proponent believes the Project can be brought into production in a relatively short period of time and at a low capital cost, because it requires few new installations. The proponent anticipates many regional economic benefits from the realization of the Project.

3.2 Alternative Means of Carrying Out the Project

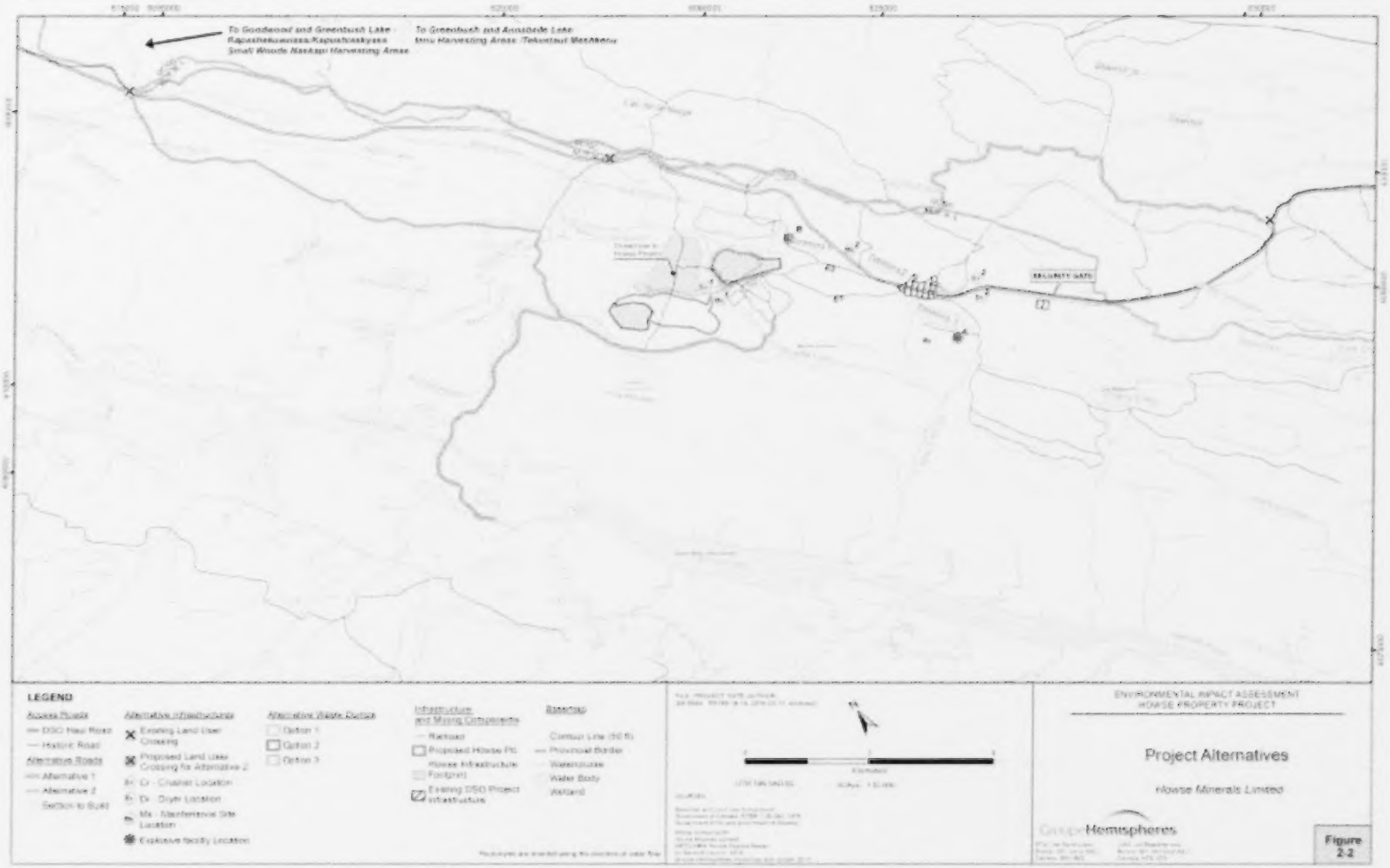
Alternative means of carrying out the Project were reviewed and evaluated, and consideration was given to the technical, economical, and environmental aspects of each alternative (Figure 3; summarized in Appendix E).

Pit Development

The proponent stated that the nature of the deposit makes open-pit mining the only viable mining method, and it did not conduct an in-depth analysis on the feasibility of other methods.

The proponent considered two types of open-pit mining: (1) the conventional method; and (2) the mixed conventional and in-pit method. The conventional method involves accumulating all waste piles outside the pit. The mixed conventional and in-pit alternative involves accumulating waste both within and outside the pit. The proponent indicated the mixed method was better environmentally and economically because it would result in a smaller footprint for waste rock piles, it would allow for restoration activities to begin earlier, it would result in fewer emissions as waste is not being transported as far, and is $2.5 million less expensive.

Figure 3 Project Alternatives



Source: Howse Property Project EIS, Howse Minerals Limited

Power Supply

The proponent considered two options to supply power to the Project: use of generators; and connection to the power grid. The proponent stated that there is insufficient power supply in the grid to meet the Project's needs, making the second option not technically feasible and therefore chose the use of generators to supply power to the Project. The proponent stated it is currently in discussions with Nalcor, Natural Resources Canada, Environment and Climate Change Canada, and the Atlantic Canada Opportunities Agency regarding the potential to connect the DSO site (including the Howse property) to the Menihek hydroelectric station, as part of the Federal Green Infrastructure Fund. However, at this time, no agreements have been reached.

Bypass Road Locations

The Project would require the closure of a section of road currently used by Indigenous peoples to access Kauteitnat, Pinette Lake, and the Howells River valley. The proponent considered two technically and economically feasible alternatives to allow continued access to these lands: upgrading and maintaining existing bypass roads; and constructing a new section of bypass road.

The first alternative would involve upgrading and maintaining an existing road which roughly travels northeast of the Project and connects to the Timmins-Kivivic Road. The Timmins-Kivivic Road then travels back towards the Project and splits to allow access to both Pinette Lake and the Howells River valley (Figure 3). The proponent indicated that this alternative would not involve construction of any new roads, and would not result in any habitat loss or alteration. However, it would be 16 kilometres longer than the second option considered. Due to the longer distance, this alternative would result in increased air emissions and noise levels, and could increase the frequency of traffic accidents and spills along the route. Indigenous peoples would also be required to travel further to access lands used for traditional purposes.

The second alternative would involve the construction of a new 1.3 kilometre section of road which would connect to the Timmins-Kivivic Road to the north of the Project. The proponent considers this alternative to be more logistically challenging, primarily because a new road with two new watercourse crossings and wetland crossings would be required. The proponent indicated that construction of the new section of road would result in potential negative effects on terrestrial and aquatic habitats and it would be close to archaeological resources which were recorded at its northern terminus. However, this route would be approximately 16 kilometres shorter than the first option.

The proponent chose the first alternative even though it is the longer route and would be more expensive for land users. This alternative is preferred because it would not involve constructing a new road; would result in less potential impacts to wetlands, watercourses, and other habitats; and would be less logistically challenging for the proponent.

Waste Rock Pile Locations

The proponent analyzed three alternate locations for waste rock piles (Figure 3). The three alternatives have similar costs:

- Alternative 1 - three waste piles, with a total footprint of 82 hectares. This alternative would require the longest travel routes.
- Alternative 2 - two waste piles, one of which is in the pit, leaving the out-of-pit footprint at 39 hectares.
- Alternative 3 - three waste piles, with a total footprint of 71 hectares.

The proponent selected alternative 2 as the preferred option given it involves only one waste pile outside of the pit and would result in the smallest footprint and least amount of environmental disruption. In addition, the waste piles for alternative 2 are located outside the Pinette Lake watershed, while alternatives 1 and 3 would each have at least one pile within the Pinette Lake watershed. Pinette Lake was identified as a particularly important and potentially sensitive waterbody by both Fisheries and Oceans Canada and local Indigenous groups.

Crushing and Screening Facility Location

The proponent considered two locations for the Howse mini-plant: the existing DSO plant complex; and the proposed Howse pit site. The proponent stated that because the DSO plant complex is located on an already disturbed site, versus the requirement to remove 1.5 hectares of wetland habitat to locate the facility at the Howse pit, the DSO plant complex location was selected. In addition, by consolidating crushing and screening at the DSO plant complex site, costs are lowered and logistics simplified.

Waste Wood Management

The proponent is considering three options for the management of waste wood at the site: donating wood to local Indigenous communities; using wood for fire drills on site (i.e. burning the wood on-site); and using wood to close landfill cells. The proponent stated that all three alternatives are economically and technically feasible. Using wood to close landfill cells would eliminate the possibility of having to introduce foreign materials to the environment. The proponent is committed to conducting fire drills, which would involve burning wood on-site, so using waste wood would eliminate the need to source wood from elsewhere. Donating wood to local communities would also provide a small benefit to those communities. The proponent has not determined which alternative it would select, and may use a combination of the three.

Water Treatment

With respect to water treatment, the proponent considered three alternatives: the use of sedimentation ponds exclusively; addition of inorganic coagulants to sedimentation ponds to assist the sediment settling process; and addition of coagulant aid (e.g. anionic flocculent). While use of coagulants would reduce the size of the new sedimentation pond by approximately half, and thus the amount of environmental disturbance, it would increase costs and logistical complexities (i.e. management of coagulant, increased sludge volumes, requirement for additional infrastructure, and storage of chemicals). As well, information on water quality at adjacent projects indicates that water treated without the addition of coagulant would be sufficient to meet requirements under the Province of Newfoundland and Labrador's *Environment Control Water and Sewage Regulations* and the federal *Metal Mining Effluent Regulations*. The proponent has also designed the new sedimentation pond to minimize its footprint and impact on local wetlands. Use of sedimentation ponds exclusively was

selected by the proponent as the preferred means. The proponent would monitor water quality and use coagulant(s) if needed.

Water Management Plan

The Howse property sits within three different watersheds: Pinette Lake, Burnetta Creek, and Goodream Creek. The proponent stated that the selection and layout of water management structures (e.g. sedimentation ponds, ditch network), as well as project components (e.g. waste rock piles) were designed to minimize impacts on these watersheds and to distribute site runoff and the water pumped from the pit (also referred to as "pit water") to the most suitable watershed. Initially, the proponent considered three configurations for water management infrastructure:

- Alternative 1 – include part of the water management infrastructure within the Pinette Lake watershed, which would result in significant watershed area changes. Runoff and pit water would be discharged to Goodream Creek.
- Alternative 2 – include part of the water management infrastructure within the Pinette Lake watershed, which would result in significant watershed area changes. Runoff and pit water would be discharged to both Goodream Creek and Burnetta Creek.
- Alternative 3 – include very little infrastructure in the Pinette Lake watershed. Runoff and pit water would be discharged to Burnetta Creek and to Goodream Creek.

While all options are technically feasible and cost-comparable, the proponent selected alternative 3 based on environmental considerations. Alternative 3 results in the smallest watershed area changes to the Pinette Lake watershed, which is an important area identified by Fisheries and Oceans Canada and Indigenous groups.

In response to comments from Natural Resources Canada, the proponent proposed additional modifications to its preferred alternative to mitigate potential drawdown effects on Triangle Lake as a result of pit dewatering. The modified alternative would involve construction of a single new sedimentation pond, as opposed to the two originally proposed, which would collect the majority of the surface runoff and pit dewatering water, as well as construction of a drainage ditch which would intercept surface water from Kauteitnat before it reaches the pit and redirect it to a dissipation pool for release into Burnetta Creek. While there would still be very little infrastructure located in the Pinette Lake watershed, site runoff and pit water would now be discharged into Goodream Creek only. The new alternative considered, and ultimately selected, would allow additional water to be discharged into Triangle Lake and mitigate the uncertainty regarding potential drawdown of Triangle Lake.

3.2.1 *Views expressed*

Health Canada and the Innu Nation requested that the proponent consider additional alternatives to diesel generators, including use of renewable energy sources, which could reduce air emissions. The Innu Nation also expressed concern about air quality at the workers' camp and asked whether consideration had been given to alternative locations for the camp. The proponent indicated that most modelled exceedances at the workers' camp are the result of the presence of diesel generators. The proponent did consider supplying power to the Project, including the workers' camp, by connecting the

Project to the existing electricity grid, but determined that this option was not technically feasible due to insufficient supply in the electrical grid. The proponent evaluated using wind power, but determined the costs of implementing a wind power program were not justified given the duration of the Project. The proponent indicated that performance of solar panels in northern regions is not efficient and would be limited to a relatively short period of the year (i.e. summer). As previously mentioned, the proponent indicated it is investigating the possibility of connecting the DSO site (including the Howse property) to the Menihek hydroelectric station; although at the time of this report no agreements had been reached.

The Innu Nation requested that the proponent consider options for disposing of waste rock and unused overburden in existing open pits in the region. This alternative could help with the reclamation of existing pits in the region and also reduce or eliminate the Project's waste rock piles that would need to be rehabilitated. Most options for waste pile locations farther away from the Project were not considered by the proponent because of logistical, economic, and environmental factors associated with the greater transportation distance. However, the proponent did consider using the Timmins 4 pit for disposal of waste rock and overburden. The Timmins 4 pit is located approximately 1 kilometre east of the proposed Howse pit and is part of the DSO project complex. Due to the proximity of the Timmins 4 pit to the Pinette Lake watershed, the proponent stated that using it as a waste disposal site would present an increased risk to that watershed. In addition, the Timmins 4 pit would not be able to accommodate all of the extra waste from the Project, and the Timmins 4 pit would be filled in regardless as a reclamation measure for that deposit.

4 Consultation Activities and Advice Received

4.1 Public Participation

4.1.1 *Public participation led by the Agency*

The Agency provided opportunities for the public to comment on the summary of the Project Description, draft EIS Guidelines, and the summary of the proponent's EIS (Table 3). The public was invited to comment on the draft EA Report and potential conditions. Notices of these opportunities to participate were posted on the Canadian Environmental Assessment Registry Internet Site and advertised through local media.

Table 3 Indigenous and Public Comment Opportunities during the Environmental Assessment

Subject of Consultation	Dates
Summary of the Project Description	April 17, 2014 – May 7, 2014
Draft EIS Guidelines	June 3, 2014 – July 3, 2014
EIS Summary	April 20, 2016 – May 25, 2016
Draft EA Report and potential conditions	January 11, 2018 – February 11, 2018

The Agency supported public participation in the EA through its Participant Funding Program. No applications for funding were received from the public. The Agency has also not received any public comments on the Project or the EA to date.

After taking into consideration the comments received from the proponent and Indigenous groups on the draft EA Report, the Agency finalized the EA Report and submitted it to the Minister of Environment and Climate Change to support her decision on whether the Project is likely to cause significant adverse environmental effects.

4.1.2 *Public participation activities organized by the proponent*

The proponent engaged local residents from the community of Schefferville, Quebec, through public meetings. Radio and bulletins distributed by mail were used to provide information and updates on the Project to local residents. The proponent also held meetings with local government representatives from Schefferville and Sept-Îles, Quebec.

4.2 Indigenous Consultation

4.2.1 *Indigenous consultation led by the Agency*

The Crown has a duty to consult Indigenous groups and, where appropriate, to accommodate when its proposed conduct might adversely impact upon an established or potential Aboriginal or treaty right. Indigenous consultation is also undertaken more broadly as an important part of good governance, sound policy development, and appropriate decision-making.

These responsibilities are in addition to the requirements under CEAA 2012 to consider the effect of any changes to the environment caused by the Project on Indigenous peoples. The results of that analysis are set out in Sections 7.4 and 7.5 of this EA Report. The potential impacts on potential or established Aboriginal or treaty rights are discussed in Section 9.0. To fulfill the Crown's consultation obligations, the Agency conducted Indigenous consultation in a manner that was integrated with steps in the EA process.

For the purposes of the EA, the Agency served as federal Crown Consultation Coordinator to facilitate a whole-of-government approach to consultation. The Newfoundland and Labrador Department of Municipal Affairs and Environment was the lead for provincial Crown consultation activities. The Agency and the Province of Newfoundland and Labrador coordinated consultation activities to the extent possible, including sharing their respective correspondence with Indigenous groups, as appropriate.

The Agency identified the following Indigenous groups for consultation based on the location of the Project and the extent of its potential adverse effects on potential or established Aboriginal or treaty rights:

- Innu Nation;
- Innu Takuaikan Uashat mak Mani-Utenam;
- Nation Innu Matimekush-Lac John;
- Naskapi Nation of Kawawachikamach;
- NunatuKavut Community Council.

The Agency supports Indigenous participation through its Participant Funding Program. Funds were made available to reimburse eligible expenses of the groups that participated in the EA. The groups listed above applied for and were allocated a total of $233,687.60 through this program.

The Agency integrated Indigenous consultation activities into the EA process. The Agency consulted Indigenous groups through a variety of methods, including phone calls, emails, letters, and in-person meetings. The Agency provided regular updates to keep Indigenous groups informed of key developments and to solicit input or feedback. The Agency requested written comments on the documents described in Table 3.

During the comment periods, the Agency received comments from the Innu Nation, Innu Takuaikan Uashat mak Mani-Utenam, the Nation Innu Matimekush-Lac John, the Naskapi Nation of Kawawachikamach, and the NunatuKavut Community Council. The Agency held face-to-face meetings during the review of the EIS with the Nation Innu Matimekush-Lac John and the Naskapi Nation of Kawawachikamach.

Appendix F contains a summary of concerns raised by Indigenous groups during the EA process and the proponent's and the Agency's responses to those concerns.

The key issues raised by Indigenous groups during consultations were linked to:

- effects of the Project on fishing, gathering, trapping, and hunting, including access to lands and resources;
- proximity of the Project to Kauteitnat, a site of cultural significance;
- air quality, particularly impacts from dust;
- effects of the Project on caribou; and
- cumulative effects.

Additional details regarding the concerns raised are outlined in Sections 6 and 7.

4.2.2 *Indigenous consultation and engagement activities organized by the proponent*

Information obtained by the proponent about the Indigenous groups' practice of rights and use of resources, as well as the proponent's assessment of potential impacts of the Project, helped to inform the federal government's consultation process. This process included the assessment of potential adverse impacts of the Project on potential or established Aboriginal or treaty rights, and the identification of accommodation measures that may be required to address those potential impacts.

The proponent engaged the five Indigenous groups identified in Section 4.2.1, based on proximity to the Project and on current land-use practices. The proponent engaged Indigenous groups through meetings, such as those of the Health, Safety, and Environment Committee, which was established by the proponent in the spring of 2013 and includes representation from all five groups. The committee tries to meet three to four times per year, and serves as a forum for open discussions and addressing issues related to health, safety, and the environment. The proponent also provided project information and updates through local radio stations and printed bulletins. Draft copies of the Project Description and the EIS were provided to the Indigenous communities for comment and revisions were made based on comments received prior to the submission of the final versions to the Agency.

The proponent prepared and submitted a *Study on Land and Resource Use by the Innu and Naskapi* in the project area and surrounding areas (referred to as the land use study). The study focused on the three communities the proponent identified as being the primary holders of Aboriginal or treaty rights in the study area (Innu Takuaikan Uashat mak Mani-Utenam, the Nation Innu Matimekush-Lac John, and the Naskapi Nation of Kawawachikamach). In addition, the proponent conducted an archaeological resources investigation in and around the project area.

Impact benefit agreements for the Project were originally signed between Labrador Iron Mines and all five Indigenous groups. However, in April 2015 the proponent acquired 100% ownership of the Project. The proponent has indicated that it is currently in discussions with the Indigenous groups on incorporating the Project into existing agreements between Indigenous groups and the proponent.

4.3 Participation of Federal and Other Experts

Federal authorities provided specialist or expert information or knowledge and advice with respect to the Project in accordance with Section 20 of CEAA 2012, through reviewing the Project Description, the

draft EIS Guidelines, the EIS, information request responses, and providing input into the preparation of the draft EA Report and potential conditions.

Participating federal authorities included:

- Fisheries and Oceans Canada: input on fish and fish habitat that are part of, or support, a commercial, recreational, or Aboriginal fishery; and provisions related to fish passage and flow.
- Environment and Climate Change Canada: input on air quality and emissions, effluent discharges related to mine waste management, surface water quality and quantity, non-aquatic species at risk, migratory birds, meteorology and climate change, and accidents and malfunctions.
- Natural Resources Canada: input on groundwater quality and quantity, groundwater-surface water interactions, geology and terrain stability, permafrost, and geohazards.
- Health Canada: input on potential impacts on Indigenous health related to country foods, water quality, noise levels, and air quality.

The Agency and the Newfoundland and Labrador Department of Municipal Affairs and Environment coordinated the federal and provincial EA processes through information sharing during the technical review of the EIS and at various other phases of the EA. Provincial departments that provided expertise included: the Department of Fisheries and Land Resources, the Department of Environment and Climate Change, and the Department of Tourism, Culture, Industry and Innovation.

5 Geographical Setting

5.1 Biophysical Environment

Climate

The Project is located in western Labrador, approximately 25 kilometres northwest of Schefferville, Quebec. The regional climate is characterized as humid micro-thermal under the Koppen-Gieger system. Located at 54° north, the Howse Project lies in the path of the dominant westerly winds of the mid-latitudes. Long-term records indicate a mean annual air temperature of -5.3 degrees Celsius in Schefferville. The seasonal pattern of air temperature is typically continental and is characterized by dramatic extremes, ranging from as low as -50.6 degrees Celsius to as high as 34.3 degrees Celsius. On average, the first day of frost is September 11 and the last is June 13, yielding 92 frost-free days per year. Mean annual precipitation is 791 mm, with a peak in summer, and there is an average of 216 days with precipitation. A little more than half the precipitation falls as snow, the average maximum thickness of which is 71 cm in March.

Air Quality

Air monitoring data available for periods prior to the construction and operation of the nearby DSO project complex generally indicate low background concentrations of air pollutants in the area, which are below all the selected assessment criteria. However, existing mining activities in the area, particularly the DSO project complex, have resulted in local emissions of atmospheric pollutants such as total particulate matter, particulate matter less than 10 microns, particulate matter less than 2.5 microns, and nitrogen dioxide. At certain sensitive receptors identified by the proponent, notably at the workers' camp, baseline concentrations of particulate matter less than 10 microns and nitrogen dioxide may exceed air quality assessment criteria. These exceedances are due to the operations of the DSO project complex, and are mainly caused by emissions from the diesel generators at the workers' camp and/or from blasting.

Existing issues related to dust emissions and dust events are well documented in the region. Dust events are most common during the drier summer months and are generally associated with the ongoing and historic mining activities in the region.

Surface Water Quantity and Quality

Three watersheds are proximate to the project area: Triangle Lake, Pinette Lake, and Burnetta Lake watersheds. Triangle Lake and Pinette Lake are the two largest water bodies in the general vicinity of the Project. The largest watercourse in the area is Goodream Creek to the north. Other watercourses within a kilometre radius of the Project include Burnetta Creek (to the west) and creek PIN1 (Pinette Creek inflow to the southeast). Ultimately, all watercourses flow towards the Howells River valley, which is located approximately 3 kilometres west of the Project and consists of a series of lakes, including Rosemary Lake, connected by the Howells River (Figure 2). Streamflow of Goodream Creek is highest in May during spring freshet, while small watercourses such as Burnetta Creek and PIN1 typically dry up in the summer and winter.

Most baseline water-quality parameters, such as dissolved oxygen, temperature, and conductivity are consistent with good water quality. During sampling in 2009, all water bodies were acidic at one time or another. The acidic value is likely due to the wetlands which partially cover their drainage area. Acidic forest and fen are the most extensive type of wetland, occupying about 10% of the local study area defined for terrestrial ecosystems, wetlands, and vegetation (which corresponds to approximately 365.5 hectares of wetlands in the 3520.74 hectares local study area). Turbidity spikes were noted during significant rainfall events. Other values are within normal ranges.

Baseline water-quality results showed exceedances of the Canadian Council of Ministers of the Environment *Water Quality Guidelines for the Protection of Aquatic Life* for aluminium in all watersheds in the project area, iron in the Goodream and Pinette watersheds, and copper in an upstream tributary to Goodream Creek. The overall quality of natural metal concentrations and conventional parameters is considered good.

Groundwater

The proponent reported that in the project area, groundwater flows from the southeast to the northwest over an average gradient of 0.01 metres per minute. The proponent indicated that under the Howse deposit the depth of the water table ranges from 67 metres to 90 metres below the surface, is recharged by flows from Irony Mountain, and discharges into Burnetta Lake.

The proponent also reported that, based on the distance between the bottoms of Pinette and Triangle Lakes and groundwater, as well as the predicted impermeable layers of lake bottom sediments (or shale rock in the case of Pinette Lake), it is unlikely that either Pinette Lake or Triangle Lake is connected to groundwater.

Fish and Fish Habitat

Five species of fish are generally found in the local study area defined for fish and fish habitat (i.e. the Triangle Lake, Pinette Lake and Burnetta Lake watersheds): Brook Trout, Burbot, Lake Chub, Lake Trout and Round White-fish. Three watercourses (Goodream Creek, GDR2 and PIN1) and three water bodies (Pinette Lake, Triangle Lake, and Burnetta Lake) provide a range of fish habitat in the local study area. Other watercourses were not considered fish bearing, including Burnetta Creek and several tributaries to Goodream Creek (e.g. GDR1, GDR3, and GDR4). No provincially or federally listed fish species at risk are present regionally.

Wildlife

The landscape provides habitat for a variety of wildlife species such as ungulates, Black Bears, furbearing animals (e.g. Grey Wolf, Artic Fox, and Red Fox), raptors, songbirds, waterfowl, and amphibians.

The proponent identified five bird species (Olive-sided Flycatcher, Rusty Blackbird, Harlequin Duck, Short-eared Owl, and Common Nighthawk), one furbearer (Wolverine), and one chiroptera (Little Brown Bat) that are listed under the *Species at Risk Act* as being present or potentially occurring in the project area and surrounding areas. Of these species, Rusty Blackbird and Little Brown Bat were observed during baseline wildlife surveys. The proponent also identified two bird species (Bank Swallow and Red-

necked Phalarope) that are assessed as threatened or special concern, respectively, by the Committee on the Status of Endangered Wildlife in Canada as potentially occurring in the project area.

Caribou

Both Migratory Tundra and Boreal Forest Caribou have the potential to be found in the vicinity of the project area. All Migratory Tundra Caribou in the region belong to the George River Caribou Herd. Based on the most recent survey conducted in 2014, the George River Caribou Herd population size declined by 97% from a 2001 population estimate (14 200 caribou down from an estimated 440 000). Currently, the George River Caribou Herd is not listed under the *Species at Risk Act;* however, in April 2017, the Committee on the Status of Endangered Wildlife in Canada assessed the Eastern Migratory Caribou population, which includes the George River Caribou Herd, as endangered.

5.2 Human Environment

With a population density of 0.1 inhabitants per square kilometre, Labrador has a small population spread over a large geographic area. Although the Project is located in Labrador, the nearest populations are found in the Schefferville and Kawawachikamach areas of Quebec. The Town of Schefferville and Matimekush-Lac John, an Innu community, are located approximately 25 kilometres from the Project, and 2 km from the Labrador border. The Naskapi community of Kawawachikamach is located about 15 km northeast of Schefferville by road. The closest cities in Labrador, Labrador City, and Wabush, are located approximately 260 kilometres from the Schefferville area.

The Schefferville area economy is supported primarily by mining activities. Mining exploration activities in the area started in the early 1800s, but construction and operation of the first mine only began in 1945. To support mining operations, a rail line to the Port of Sept-Îles was constructed, at which point Schefferville began to grow as a mining town. The population of Schefferville was 3,429 in 1976, but fell to 202 in 2006 following an economic recession in the 1980s. Starting in 2008, increased mining activity began to occur. By 2011, Schefferville's population was approximately 213 permanent residents, but then decreased again to 155 by 2016. In comparison, in 2011 the adjacent Innu community of Matimekush-Lac John and the nearby Naskapi community of Kawawachikamach had approximately 565 and 585 residents, respectively.

Indigenous peoples have engaged in traditional activities and have had a relationship with the land in the project area for thousands of years. The Naskapi moved more permanently to the area of Schefferville in the mid-1950s and began entering the wage economy. The Innu of Matimekush-Lac John are a subgroup of the Innu who historically lived along the north shore of the St. Lawrence River and traveled inland in Quebec and Labrador. Based on harvesting success and active trading posts, the Innu of Matimekush-Lac John established more permanently in the Schefferville area towards the beginning of the 20th century. With the opening of the first mine in 1945, the Innu of Matimekush-Lac John started entering the wage economy. Use of lands and resources by Indigenous people and Indigenous peoples' potential or established Aboriginal or treaty rights in the region are discussed in Sections 7.4 and 9 of this EA Report.

6 Key Environmental Effects on Components of the Environment Outside Section 5 of CEAA 2012

The Agency considered environmental effects of the Project on the atmospheric environment (Section 6.1) and caribou (Section 6.2). While the Agency does not have a mandate to determine the significance of any effects to these components because they are not defined as an environmental effect under section 5 of CEAA 2012, the atmospheric environment and caribou are related closely to other valued components on which the Agency must provide a significance determination, such as the current use of lands and resources for traditional purposes (Section 7.4) and the health and socio-economic conditions of Indigenous peoples (Section 7.5). The effects of air quality on current use of lands and resources and health and socio-economic conditions, as well as the current use of caribou were also of importance to Indigenous groups in the area.

Additional potential changes to the environment as a result of the Project not described here, such as changes to the terrestrial or aquatic environments, are integrated within the sections on other valued components, as appropriate, such as fish and fish habitat (Section 7.1) and migratory birds (Section 7.2).

6.1 Atmospheric Environment

The proponent examined the Project's potential effects on air quality, noise, and light, all of which could result in changes to the atmospheric environment. Of these effects, the predicted changes to air quality are particularly important because of existing issues related to dust generation and dust events[5] in the region.

6.1.1 *Proponent's assessment of environmental effects*

Predicted Effects

The Project could adversely affect the atmospheric environment through the release of dust (i.e. particulate matter) and other emissions, and through increased ambient noise and light levels. Greenhouse gas emissions from the Project are discussed in Section 7.6.

Air Quality

Sources of air emissions from the Project would include: vehicle traffic; power generation from diesel generators; smoke from wood burning during fire drills; and ore extraction and processing activities such as blasting, crushing, screening, ore drying, stockpiling, and train loading. The proponent stated that the greatest effects to air quality would generally occur when the Project reaches full scale operations and production.

[5] Dust events are events characterized by large quantities of airborne dust particles being transported in the atmosphere. These events have been observed in the area around Schefferville, and are caused by various factors, including lack of precipitation and wind conditions, geomorphology, and existing and historic anthropogenic activities.

The proponent's air quality model considered emission sources from the Project in isolation and in combination with existing mining activities in the region, specifically activities from the DS03 mining area and ore hauling from the DS04 mining area. The proponent indicated that its model was inherently conservative in its predictions (i.e. it likely overestimated the short-term effects on air quality) because it used stringent emissions factors, significantly overestimated the number of blasting events, and was based on the maximum estimated volumes of material mined and processed. The proponent also indicated that maximum yearly volumes of ore extracted from the DSO3 and DSO4 projects were taken into account in the model, even though these maximum volumes are not planned to be mined in the same years. Air quality assessment criteria were based on the most stringent air quality standards from Canada, Quebec, Newfoundland and Labrador, and Ontario.

When examining the Project in isolation, the proponent's air modelling predicted exceedances for nitrogen dioxide (1-hour concentrations).[6] These exceedances corresponded directly to blasting events. The nine sensitive receptors at which these exceedances were predicted were the workers' camp, Kauteitnat, and at seven nearby Indigenous camps. The proponent indicated that exceedances caused by the Project are expected to occur less than 1 percent of the time as it would require a combination of the worst-case meteorological conditions, blasting events, and other project emission sources operating at a sufficient rate to exceed the short-term nitrogen dioxide threshold.

When considering the effects of the Project in combination with existing mining activities (e.g. baseline conditions), the proponent's air modelling predicted additional exceedances for nitrogen dioxide (24-hour concentrations),[7] total particulate matter (24-hour concentrations),[8] and particulate matter less than 10 microns in diameter (24-hour concentrations).[9] The exceedances also correspond to blasting events. The location and nature of these exceedances are as follows:

- at the workers' camp there would be an exceedance of total particulate matter (24-hour concentrations) 0.11 percent of the time;
- at the workers' camp there would be an exceedance of particulate matter less than 10 microns in diameter (24-hour concentrations) 0.33 percent of the time; and
- at an Indigenous camp located less than 2 kilometres northwest of the pit there would be an exceedance of particulate matter less than 10 microns in diameter (24-hour concentrations) 0.05 percent of the time.

[6] An exceedance of nitrogen dioxide (1-hour concentration) is defined as an average 1-hour concentration greater than 400 micrograms per cubic metre.

[7] An exceedance of nitrogen dioxide (24-hour concentration) is defined as an average 24-hour concentration greater than 200 micrograms per cubic metre.

[8] An exceedance of total particulate matter (24-hour concentration) is defined as an average 24-hour concentration above 120 micrograms per cubic metre.

[9] An exceedance of particulate matter less than 10 microns in diameter (24-hour concentration) is defined as an average 24-hour concentration above 50 micrograms per cubic metre.

The proponent also predicted that existing conditions in the area, primarily caused by ongoing mining activities, such as blasting and the operation of the diesel generators, would result in additional exceedances independent of the Project. These include exceedances of nitrogen dioxide (24-hour and 1-hour concentrations) at the workers' camp and a nearby Innu camp as well as exceedances of particulate matter less than 10 microns in diameter (24-hour concentrations) at the workers' camp. These exceedances would also occur less than 1 percent of the time.

Air modelling results indicated that no exceedances of assessment criteria are predicted for dustfall (i.e. the deposition of airborne dust particles), metals, or volatile organic compounds, both when considering the Project in isolation and in combination with existing activities. At the nearest population centres (Schefferville, Matimekush, Lac John, and Kawawachikamach), the proponent predicted the effects to be minimal and that all air quality criteria would be met.

The proponent noted that dust events, and the resulting effects, including dustfall and wind-blown dust clouds, were of particular concern to local communities given existing conditions and acknowledged the Project's potential contribution to these problems. Dust events are large scale and sporadic in frequency and, unlike more measurable parameters such as particulate matter emissions and dustfall, cannot be modelled. The proponent stated that dust events can be common in the region during summer months. The frequency of dust events generally increases during periods of peak mining activity, and the proponent predicted that dust events could increase during the Project's construction phase and to a lesser extent during the operation phase, as compared to current conditions. However, the proponent also noted that wind-blown, non-fuel and non-transportation emissions (e.g. dust) are generally from low-elevation sources and their impact on ambient air quality is predominantly within a short distance from the source. The property area is relatively large and sensitive receptors (other than the workers' camp) are located far from wind-blown sources. At more distant receptors, such as in Schefferville, the impact of the Project would represent less than 2 percent of the reported particulate concentrations.

Noise

Sources of project noise would include equipment use (generators, rock breaker, graders, drills, and excavators), traffic, and the extraction and transportation of ore. The proponent predicted that with mitigation measures, noise levels would be below applicable criteria at all receptors.

Light

The Project would require lighting which could affect existing ambient light levels; however, the proponent predicted that these effects would be limited. All lighting required during the site preparation and construction phase would be temporary. In addition, the majority of site preparation and construction would occur between April and October, when days are relatively long at the latitude of the Project, and night-time operation and subsequent site illumination would be limited. Lighting required during operation would be limited to what is necessary and would be removed following Project closure. In addition, ore processing activities would occur at the existing DSO3 plant complex, reducing the requirement for additional lighting.

Proposed Mitigation Measures, Monitoring, and Follow-up

The proponent has proposed measures to reduce effects on air quality, ambient light and noise levels caused by the Project, including:

- minimize the number and size of cleared areas that are left bare and exposed to the elements;
- avoid storing excavated material on steep slopes and ensure they are properly compacted to prevent wind erosion of waste rock and overburden piles;
- use a water-spraying system at conveyor transfer and drop points;
- mix the ore with water in the drum scrubber;
- make reasonable efforts to spray roads, including the road between the DSO project complex and Schefferville, to reduce dust emissions when feasible and necessary;
- ensure construction equipment is maintained and complies with regulations to reduce emissions and noise;
- use dust extractors with filter bags to control dust emissions at the crude ore recovery tunnel, the secondary crusher and the dryer;
- use low sulfur content fuels;
- fill borehole necks with clean crushed rock to eliminate dust and gas emissions during blasting;
- develop and implement a plan for the prevention and management of blast-generated nitrogen oxides;
- evaluate wind direction and meteorological conditions prior to blasting, and when the wind is in the direction of the workers' camp, re-evaluate the blast schedule;
- conduct test blasting using a lower charge to accurately predict ground vibration and overpressure using site specific measurement data;
- ensure noise level of mining operations is no higher than 40 decibels at night and 45 decibels during the day at each receiver;
- restrict the blast charge per delay to below 1092 kilograms to reduce noise, vibrations, and air pressure;
- shield outdoor lighting;
- use only the amount of lighting required and shut off lights, including lights on top of trucks, when not required;
- use long wavelength light with a red or yellow tint;
- limit the number of vehicles travelling to and from Schefferville by transporting ore and other freight by train between Schefferville and the DSO project complex, by using shuttle buses to transport workers and other merchandise instead of smaller vehicles, and by requiring authorization for all vehicles leaving the mine site;
- require vehicles to use the wash bay at the DSO project complex before leaving the site, between May and October;
- collaborate with the authorities responsible for local road infrastructure to examine paving of streets;
- collaborate with Indigenous groups and the Town of Schefferville to create a Steering Committee on air quality which would examine dust issues and take steps towards greater dust control; and
- provide financial, technical, and administrative support to construct a vehicle wash bay at the entrance to the Town of Schefferville for which all cars, trucks and buses would be required to use before entering the limits of the town to prevent nuisance dust.

Additional mitigation measures the proponent has committed to are listed in Appendix C.

The proponent is committed to monitoring activities related to air quality and noise to determine the effectiveness of mitigation measures and to verify predictions in the environmental assessment. These activities include:

- implement an Ambient Air Quality Monitoring Plan that includes the use of mobile monitoring equipment that can be moved to sensitive points (at communities or elsewhere) to measure and document ambient air quality levels, including dustfall;
- monitor air quality in the Town of Schefferville and continue the air quality monitoring program at the workers' camp;
- monitor dust at strategic locations around the project area and DSO project complex using a dust tracking system;
- perform dust readings at key locations in Schefferville to measure dust that is related to traffic, as well as other construction activities in town;
- conduct dust and metal analysis;
- make air quality monitoring data available online;
- maintain blast records and continually review blast designs; and
- monitor noise on a monthly basis in the project area.

The proponent committed to applying various adaptive management strategies if monitoring results suggest the need for additional actions or if such strategies are deemed appropriate via other channels. The proponent stated that there are three main channels through which it would adaptively manage: (1) if air quality monitoring data frequently exceed assessment criteria; (2) if complaints are received; and (3) if staff observe issues. In each case, the proponent would investigate and conduct targeted follow up monitoring or further evaluation to understand the cause and effect of the complaint or the event. Based on those results, the proponent would implement corrective actions to address the issue.

The proponent committed to implementing the following measures if air quality standard exceedances are recorded: activate the plan for the prevention and management of blast-generated nitrogen dioxide; implement additional road watering for dust control; and potentially relocate or remove the diesel generators at the workers' camp.

The proponent committed to implementing a noise mitigation plan for drilling if noise complaints are received, either through the Health, Safety, and Environment Committee or through other means. The plan would include the following mitigation measures: reducing drilling speed, reducing drilling time, using a noise shroud around the drill, using a mobile noise screen, reducing the impact frequency when drilling at collar levels, and using mufflers to reduce the sound of exhaust. The proponent would also document noise complaints.

Predicted Residual Effects

In its EIS, the proponent concluded that residual adverse effects to air quality would be moderate in magnitude and would occur continually throughout the life of the Project, but would be experienced locally and would be reversible after the completion of the Project. Through the review of the EIS, the proponent clarified that the air quality model was inherently conservative and that any exceedances are

in fact unlikely and can be managed. The proponent concluded that the effects on air quality, after taking into account the implementation of the mitigation measures proposed, would not be significant.

The proponent concluded that residual effects to ambient noise levels would be low, local in extent, reversible after the completion of the Project, and would not be significant after taking into account the implementation of the mitigation measures proposed.

The proponent concluded that residual effects to ambient light levels would be of low magnitude, fully reversible, and not significant after taking into account the implementation of the mitigation measures proposed.

6.1.2 *Views expressed*

Federal and Provincial Authorities

The Province of Newfoundland and Labrador questioned the proponent's statement that air quality exceedances would be highly unlikely, specifically for nitrogen dioxide (24-hour concentrations), and requested justification of this conclusion. The province noted that the proponent did not sufficiently define the term "highly unlikely" or fully justify its conclusion; however, the province acknowledged that the assessment's inputs were indeed highly conservative (i.e. emissions were likely overestimated and worst case meteorological conditions were considered). The province is of the view that the modelling was accurate, but the actual outcomes would likely be significantly less than what was modelled and exceedances are indeed unlikely to occur.

Environment and Climate Change Canada noted that reflecting dust events in background and predicted emissions is problematic in that they only happen occasionally – when the soil is dry and the winds are in the right direction. Obtaining quantitative measurements or making predictions is difficult, and these events are mostly understood solely through qualitative observations. This difficulty means that the dust events, which are of particular concern to local communities, may not be fully reflected and considered in the proponent's air quality model and assessment of the Project's effects on air quality. Similarly, Environment and Climate Change Canada noted that there are inherent uncertainties with emission factors for non-fuel and non-transportation based emissions sources, particularly wind-blown emissions of particulate matter (e.g. dust). Despite the proponent's contention that its analysis of emissions was conservative, Environment and Climate Change Canada stated that these inherent uncertainties remain; however, it is satisfied with the proponent's assessment of effects and proposed mitigation and monitoring measures.

Environment and Climate Change Canada and Health Canada also questioned the proponent's estimation and analysis of dust deposition, and suggested dust deposition may have been underestimated. Environment and Climate Change Canada and Health Canada noted that the proponent used dustfall data and background information from other regions, which may not accurately reflect the baseline dust levels in the project area. The proponent noted that, at the time of the study, a thorough search for dustfall data from the Schefferville region was conducted and no such data were publicly available. The proponent maintained that, even if the background data were underestimated, it would

not be underestimated enough that the assessment criteria would be exceeded. The proponent stated that this is because dust generation from the Project and the resulting deposition is likely to be localized. Environment and Climate Change Canada was generally satisfied with the proponent's response.

Indigenous Groups

Project emissions are a concern to Indigenous groups, and the Innu Nation, the Nation Innu Matimekush-Lac John, and the Naskapi Nation of Kawawachicamach all raised concerns regarding the Project's potential effects on the atmospheric environment. Groups challenged and questioned the proponent's effects predictions, air quality model inputs, assumptions, limitations, baseline data, cumulative effects assessment, effectiveness of mitigation measures, and commitment to specific follow-up measures. They also suggested that current mitigation measures to improve air quality in the area are unsatisfactory and that additional measures must be implemented.

Effects from dust and preventing dust generation and dust events were of notable concern to Indigenous groups, particularly considering the existing issues with dust in the region. Indigenous groups recommended that the proponent provide a detailed dust prevention and management plan that includes mitigations applicable to each emission source, such as traffic management, paving roads, a facility for cleaning vehicles, and use of dust suppressants. They also recommended that dust mitigations be studied and monitored to evaluate the effectiveness of controlling dust. The Naskapi Nation of Kawawachikamach also requested that the proponent keep them apprised of any details pertaining to the study of alternate dust suppressants to water.

Views expressed by Indigenous groups related to the human health and socio-economic effects of project-related changes to the atmospheric environment are discussed in Section 7.5.

6.2 Caribou

The proponent selected caribou as a valued component due to its cultural importance for Indigenous peoples and in response to the serious decline of caribou populations in Labrador and Quebec. The Project has the potential to affect the George River Caribou Herd (occasionally referred to in this report as "the herd") through the loss/alteration of habitat, anthropogenic disturbance, and direct mortality.

The Agency also considered how the Project's potential effects on caribou would impact the current use of lands and resources for traditional purposes (Section 7.4), as well as potentially impact upon Aboriginal rights (Section 9.0).

6.2.1 *Proponent's assessment of environmental effects*

George River Caribou Herd Use of the Local Study Area

The proponent defined the local study area for caribou as a 15 kilometre radius surrounding the project footprint and the regional study area as the entire George River Caribou Herd range (i.e. northeastern Labrador and northeastern Quebec). The two study areas enable consideration of project effects on caribou as well as cumulative effects.

The proponent stated that the George River Caribou Herd historically occupied the local study area, particularly during fall and spring migrations from 1971 to 2001. The local study area is typically not used for calving or wintering habitat. As noted in the proponent's *Study on Land and Resource Use by the Innu and Naskapi*, after the closing of the Iron Ore Company of Canada mine in 1982, there were so many caribou that they wandered freely throughout the Schefferville area. More recently, however, George River Caribou have not been observed in the local study area, with the most recent sighting being in 2009 when seven caribou were observed.

Status of the George River Caribou Herd

The proponent described the George River Caribou Herd's population trend as having rapid increases followed by drastic declines. A population survey in 1958 estimated the herd size to be 15 000 caribou, which increased throughout the second half of the century to the late 1980s, when the herd reached an estimated population size between 700 000 and 800 000. A serious decrease in population size began in the late 1990s which accelerated around 2001, when the herd's population was estimated to be 385,000. By 2010, the population dropped to approximately 74 000. The most recent estimate of the population of the George River Caribou Herd is 8938, based on a July 2016 survey. On January 22, 2018, Environment and Climate Change Canada initiated a nine-month consultation on the listing of the Eastern Migratory population of caribou as endangered on Schedule 1 of the *Species at Risk Act*. This comment period ends on October 22, 2018.

The proponent correlated the herd's population decline to the following factors:

- External Factors: The proponent identified several external factors that may have contributed to the George River Caribou Herd's decline, including: deterioration in habitat conditions, availability or condition of food resources, predation, climate change, and illegal hunting.
- Herd Demographics: The proponent also stated that the demographics of the George River Caribou Herd's population are not capable of supporting population stabilization or recovery. In particular, the proponent indicated that the recovery is hampered by low recruitment – calves represent 7 percent of the population, whereas an estimated 15 percent is needed for herd recovery. Based on information released by the Province of Newfoundland and Labrador in 2015, the proponent stated that demographic monitoring indicates an improvement in the number of calves and males in the population; however, the proponent concluded that these numbers are still far from supporting population stabilization.

The proponent noted that, based on census results, biological health indicators, population modelling projections, and consultation with stakeholders, the Government of Newfoundland and Labrador initiated a five-year caribou hunting ban for the herd in 2013. The Quebec government also prohibited sport hunting of Migratory Tundra Caribou, which includes the George River Caribou Herd, starting in 2012, for an indeterminate period.

Predicted Effects

The proponent noted that Migratory Tundra Caribou are known to be sensitive to human disturbances and habitat fragmentation, and concluded that project activities can be expected to disturb caribou if they are present in the local study area.

The proponent identified potential adverse effects to occur to caribou during all phases of the Project through loss/alteration of habitat, anthropogenic disturbance, and direct mortality. The proponent noted that although direct mortality could occur through collisions with vehicles, it is not seen as a likely threat, especially since caribou are not currently present in the local study area. As such, direct mortality was not further examined.

The proponent estimated that 71 percent (approximately 50.28 square kilometres) of the local study area is suitable caribou habitat, of which an estimated 1.7 percent (approximately 1.2 square kilometres) would be directly lost as a result of the Project. Further, the proponent noted that habitat fragmentation may result through the removal of habitat, mine development, and roads.

The proponent explained that, given the small caribou population and that caribou habitat is ubiquitous throughout the regional assessment area, project-related habitat loss would not be limiting to caribou. The proponent suggested that progressive site restoration should reverse some direct habitat loss.

With respect to anthropogenic disturbances, the proponent indicated that caribou generally avoid human-altered landscapes for the duration of the disturbance and have been known to avoid mining infrastructure by up to 14 km. As such, the proponent estimated that the Project would result in 707 square kilometres (equivalent to the local study area) of habitat being indirectly lost, translating to approximately 0.1 percent of the George River Caribou Herd's range. The proponent also indicated that disturbance generated by noise and light could modify the George River Caribou Herd's migration route; however, the proponent pointed out that these potential effects are difficult to quantify and predict. Although the proponent indicated that caribou are known to alter their behavior to avoid human disturbances, they can also become accustomed to these disturbances over time.

Proposed Mitigation Measures, Monitoring, and Follow-up

The proponent committed to implementing best management practices to mitigate effects on caribou, including the following measures:

- remain in communication with the Newfoundland and Labrador Department of Fisheries and Land Resources (Wildlife Division), as well as the Ungava Research Program partners to monitor the George River Caribou Herd should it approach the project area;
- conduct project activities with caution, following notification to the proponent's environmental specialist/permit manager that Migratory Tundra Caribou, which are monitored via satellite collars, are within 100 kilometres of the Howse Project. Notice is provided in accordance with an agreement with the Ungava project and the CircumArctic Rangifer Monitoring and Assessment network;

- monitor caribou within a 20 kilometre radius of the Project and communicate data collected to authorities who would advise on a further course of action to be followed, as required;
- cease blasting and hauling activities if caribou are spotted within 5 kilometres of the active pit or the processing complex. Activities would remain halted until it is confirmed that the caribou have left the 5 kilometre radius area and any potential risks to the caribou have been mitigated. Contact the Newfoundland and Labrador Department of Fisheries and Land Resources (Wildlife Division) prior to resuming blasting or hauling activities to discuss any further steps to be taken;
- contribute financially to the Caribou Ungava Project to advance research on caribou and on the effects of mining activities on the George River Caribou Herd decline;
- conduct progressive site restoration to restore caribou habitat; and
- reschedule work activities to avoid wildlife encounters if necessary.

Predicted Residual Effects

The proponent stated that the Project is in an area that has been continuously and significantly altered by human activities. Although the proponent stated throughout its analysis that caribou are sensitive to and maintain distance from mining activity, it also notes that caribou exhibited resilience to disturbances caused by mining infrastructure in the area in the past and have shown plasticity in their adaptation to human-altered landscapes.

Despite this apparent uncertainty in the proponent's analysis, it indicated that project effects to caribou would be adverse and the duration of these effects would be long, meaning they would occur for the entire life of the Project. However, the proponent also indicated that the residual effects would be of low magnitude, felt locally, and would be reversible. In addition, the proponent believes that caribou are unlikely to naturally return to the local study area during the life of the Project, and therefore any residual effects to caribou are unlikely.

Overall, the proponent concluded that the effects of the Project to caribou would not be significant.

6.2.2 *Views expressed*

Federal and Provincial Authorities

The Province of Newfoundland and Labrador advised that the George River Caribou Herd was abundant in the 18th century, rare again by 1920, reached a peak again circa 1990, and has been decreasing since. The Province of Newfoundland and Labrador stated that the herd formerly used much of the local study area on an annual and seasonal basis, most often during the spring and fall migration periods.

The Province of Newfoundland and Labrador also provided a figure showing the herd's distribution between 2010 and 2015, which indicated that collared caribou have in fact been documented at a distance of approximately 20 kilometres from the project area; however, high densities of habitat use are shown to be over 80 kilometres from the project area. The Province of Newfoundland and Labrador stated that factors such as predation, hunting, and land use activities can add to or compound population declines, if not managed and mitigated properly.

The Province of Newfoundland and Labrador noted that although the proposed project area is not considered unique wintering or calving caribou habitat, it acts as a corridor between these habitats. It stated that, with regard to migratory movements of caribou (and associated areas of landscape), the decline of herd size has been strongly correlated to a retraction of the herd range. Therefore, while the caribou are not currently using the area around the proposed Project, as the herd recovers it is reasonable to expect that caribou may occupy portions of the local study area again.

Further, the Province of Newfoundland and Labrador provided information on caribou movement during spring and fall migration periods from 1986 to 2014 which indicates that, for the most part, caribou have migrated through the entire region and travelled through the project area. It pointed out that migration routes can vary as the population size varies, and as the herd occupies more or less space on the land, the proximity of the Project to migration routes may have some influence on caribou movements; however, it is less critical during this current declining phase compared to the recovery phase.

The Province of Newfoundland and Labrador stated that the Project is unlikely to contribute significantly to the herd's current population decline or its potential short-term recovery, but the effects of the Project may become greater if the herd recovers and/or re-occupies its former ranges and migration routes. However, the Province of Newfoundland and Labrador also noted that, during the previous recovery period of the George River Caribou Herd, migration routes included areas around Schefferville and any related contribution of mining activities to potential limitations of herd recovery were, therefore, not realized.

The Province of Newfoundland and Labrador suggested that mitigation to minimize effects on caribou should be investigated in consideration of future occupation and potential migrations to ensure recovery and that the herd's expansion is not impeded and that the proponent should monitor caribou in relation to project activities.

As a condition of the provincial EA approval, the Province of Newfoundland and Labrador would also require the proponent to contact the Department of Fisheries and Lands Resources (Wildlife Division) to discuss appropriate action prior to initiating any deterrents to move caribou away from the project area.

Indigenous groups

The Naskapi Nation of Kawawachikamach, the Nation Innu Matimekush-Lac John, and the Innu Nation all noted the importance of caribou to their peoples' cultures, traditions, and diets, and expressed concern regarding the current status of the George River Caribou Herd and the Project's potential effects, both direct and cumulative, to caribou. Comments received by the Agency confirmed that caribou have not been seen in the local study area in the last five years; however, Innu from Matimekush-Lac John noted that, in 2015, caribou from the George River Herd were harvested less than 70 kilometres from Schefferville.

Both the Naskapi Nation of Kawawachikamach and the Nation Innu Matimekush-Lac John stated that the possibility of the George River Caribou Herd eventually returning to the area should not be dismissed. In fact, they have confidence that caribou will indeed one day return, if given the

opportunity, and requested additional surveys and studies be undertaken by the proponent. Both groups fear that as the George River Caribou Herd recovers, project activities have the potential to modify caribou migration routes and the herd will no longer use the local study area. The Naskapi Nation of Kawawachikamach acknowledged that the population decline may not be directly linked to the mining industry, but noted that this did not change the fact that the Project lies within the George River Caribou Herd's migration corridor and could have an effect on the herd.

Naskapi Nation of Kawawachikamach also supported and expressed its interest to partake in a Caribou Joint Committee, if established. The committee would require involvement from all mining companies operating in the region, both in Labrador and Quebec, as well as governments and Indigenous communities. The committee would be ideally focused on the cumulative impacts on the George River Caribou Herd and an attempt to find proper mitigation measures and jointly implement mitigation measures as required. Similarly, Indigenous groups provided support and expressed interest in a regional caribou assessment being conducted for the iron ore mining industry within the Labrador trough area. The proponent agreed that such a study may be informative; however, it would require involvement from many stakeholders and go beyond the requirements of an assessment under CEAA 2012. The Naskapi Nation of Kawawachikamach agreed and stated that the responsibility for caribou is difficult for the proponent to bear alone, and should be supported by government authorities.

7 Predicted Effects on Valued Components

7.1 Fish and Fish Habitat

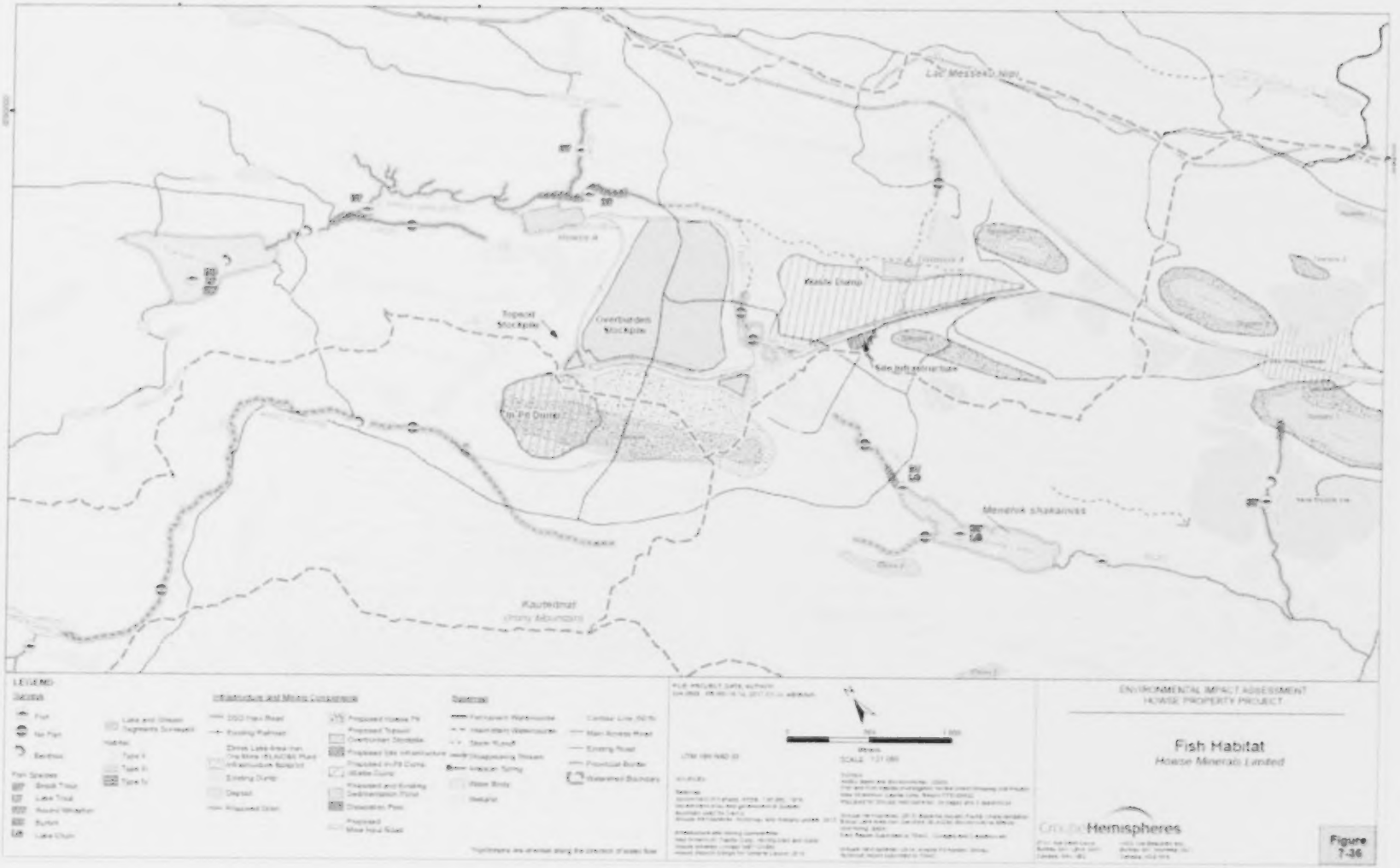
The Agency focused its assessment of potential effects of the Project on fish to fish health and mortality, and fish habitat. The Project has the potential to affect fish and fish habitat as a result of blasting and changes to water quality and quantity. The Project is not expected to result in any direct loss of fish habitat.

7.1.1 *Proponent's assessment of environmental effects*

Predicted Effects

The proponent's assessment focused on fish and fish habitat while also considering benthic invertebrate habitat. The proponent conducted baseline surveys (e.g. water quality tests, fish and benthos sampling, fish habitat surveys) of all watercourses and water bodies in the local study area, except Burnetta Lake, as the proponent predicted it would not be affected by the Project (Figure 4). The proponent included the following fish-bearing watercourses and lakes in its assessment: Goodream Creek, GDR2 Creek, PIN1 Creek, Triangle Lake, and Pinette Lake. The proponent concluded that five fish species were present in the local study area: Brook Trout, Burbot, Lake Chub, Lake Trout, and Round Whitefish. No fish species at risk were identified within the local study area.

Figure 4 Fish Habitat



Source: Howse Property Project EIS, Howse Minerals Limited

The proponent focused its studies on fish mortality from blasting and fish health from changes to water quality and quantity. The proponent indicated that the use of explosives near fish habitats may cause injuries or mortality to fish at all life stages, depending on the size of the charge used and the location.

The proponent compared predicted future water quality against the *Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Aquatic Life*. The proponent stated that an increase in total suspended solids in Goodream Creek due to mine drainage discharges would likely affect fish habitat. This would mainly occur during the operation phase and specifically during the spring thaw and heavy rainfall events, when the sediment ponds could overflow, reducing their sediment abatement capabilities. As a result, the proponent predicted that total suspended solid concentrations in Triangle Lake, downstream of Goodream Creek, could be elevated during spring thaw – with concentrations of up to 12.9 milligrams per litre, resulting in some exceedances of the *Canadian Council of Ministers of Environment Water Quality Guidelines* of 8 milligrams per litre (5 milligrams per litre above the background concentration of 3 milligrams per litre). The proponent did not calculate total suspended solid concentrations in Goodream Creek, but expects concentrations would exceed the *Canadian Council of Ministers of Environment Water Quality Guidelines* during spring thaw and heavy rainfall events. The proponent acknowledged that any effluent discharge during spring thaw would be unfavourable in terms of timing because fish eggs and fry would still reside in the creek bed; however, it concluded that this effect would be low in magnitude and fully reversible for the following reasons:

- sediment pond discharge would not likely settle on the creek bed because Goodreem Creek itself would also be flowing higher in the spring and dilute the ponds discharge;
- the presence of wetlands downstream from the sediment ponds would filter suspended solids from the creek prior to reaching fish habitat further downstream; and
- the redesign of sediment pond HowseA calls for the construction of two connected settling ponds, which would allow for additional settling of sediment prior to discharge.

With regard to water quantity effects on fish habitat, the proponent predicted that effluent discharges from the HowseA sedimentation pond would increase water levels in Goodream Creek by a maximum of about 25 percent at normal spring flood conditions, although this would be partially buffered by the large wetland at the pond discharge point. The proponent also predicted that groundwater drawdown effects on fish-bearing waters caused by pit dewatering would likely be minimal, as groundwater was estimated to be 7 metres below the bottom of Triangle Lake and 25 metres below the bottom of Pinette Lake (the two lakes in the area with the greatest potential to be influenced by mine dewatering). Additionally, it stated that groundwater is likely, though not confirmed, to be disconnected from both lakes by the lake bottom geology. The proponent committed to implementing a follow-up monitoring program, including surface water and groundwater monitoring stations to verify these predictions.

The proponent calculated that when dewatering has ceased at closure, the pit would take up to four years to passively fill with groundwater. The proponent determined that there would be no outflow of pit water into the receiving environment because the pit water would be at groundwater level, thus regulating the water level in the pit. Additionally, the proponent predicted that pit water would be of good quality because seepage through the pit wall would filter total suspended solids.

Proposed Mitigation Measures, Monitoring, and Follow-up

The proponent committed to implementing best management practices to mitigate effects on fish and fish habitat. A full list of the mitigation measures proposed by the proponent is presented in Appendix C; however, several of the main mitigation measures include:

- implement erosion and sedimentation control measures, including general best practices, such as avoiding work in erosion sensitive zones; considering the site's natural topography and drainage; properly removing topsoil and constructing ditches, trenches, and roads; maintaining natural buffer zones along roads and other construction zones; installing anti-erosion and sediment barriers; and properly storing excavated material, including stabilizing slopes;
- limit the blast charge per delay to below 1092 kilograms to protect fish and fish eggs against both vibration and overpressure;
- use a time-delay blasting technique, which dampens the sound waves and reduces the effects of noise and ground vibration on spawning fish and fish eggs; and
- improve water quality by using unlined sedimentation ponds to reduce total suspended solids discharged to Goodream Creek. By not lining the ponds, suspended particles too small to settle out of the ponds via gravity would get filtered out through the base of the sediment ponds during low flow periods.

The proponent also re-designed its water management infrastructure in response to concerns from Natural Resources Canada that pit dewatering could reduce water levels in Triangle Lake. The new design involves collecting water via a network of surface ditches and in-pit dewatering pumps and conveying it to one of two sedimentation ponds (labeled HowseA and Timmins4 in Figure 2), which discharge water into Goodream Creek and then Triangle Lake. The majority of runoff from the Project would go into HowseA, while Timmins4, which is part of the DSO project complex, would only receive runoff from the Howse haul road. In addition to surface water runoff from the Project, Timmins4 also receives runoff from the Timmins4 area of the DSO project complex. The proponent indicated that the increase in surface water collected in the HowseA sedimentation pond, compared to the initial design proposed in the EIS, could be used to increase Triangle Lake water levels if drawdown is observed.

The key monitoring activities proposed by the proponent include:

- develop a water monitoring program that would be integrated into the current monitoring program for the DSO project. The monitoring program would include quarterly groundwater and surface water sampling from locations down gradient of the sedimentation ponds, up gradient of the project footprint for reference, and weekly effluent monitoring of the sedimentation ponds to ensure compliance with the *Metal Mining Effluent Regulations* under the *Fisheries Act*, which governs water quality parameters of discharge from metal mining activities;
- monitor changes in fish and fish habitat down gradient of the Project, in accordance with the *Metal Mining Effluent Regulations* under the *Fisheries Act*;
- develop a monitoring program to verify the prediction of no connectivity between Triangle Lake and groundwater. Install automated gauges on Triangle Lake and Morley Lake and a groundwater monitoring well in close proximity to Triangle Lake, to monitor surface and groundwater levels;

- conduct regular testing of waste rock piles to monitor for acid generation, even though acid generating rock is not anticipated. Any sign of acidity would lead to segregation of acidic waste for further mitigation; and
- establish, upon completion of mining operations and prior to restoration work, a surface and groundwater monitoring program, approved by the Newfoundland and Labrador Department of Municipal Affairs and Environment. The proponent stated that the monitoring program would continue for two years following the end of the Project and based on positive results, the proponent would apply for reduced monitoring for an additional three years before applying for a release letter from the provincial government.

Predicted Residual Effects

The proponent concluded that the proposed mitigation measures would eliminate any effects from blasting on fish mortality, and the only effect the Project would have on fish habitat is due to mine drainage discharge that could result in a reduction in water quality of some Brook Trout spawning grounds or benthic invertebrate habitats in Goodream Creek. The proponent predicted that the HowseA sedimentation pond would reduce the frequency of effluent discharge to a few weeks during spring thaw and heavy rainfall events. The rest of the year, the proponent predicted that the water would either evaporate or infiltrate through the sediment pond bottom and be filtered out before being discharged downstream.

In its residual effects assessment, the proponent acknowledged that the effluent discharge during spring thaw would be considered unfavourable timing because fish eggs and fry would still reside in the creek bed; however, the proponent concluded that this effect would be low in magnitude and fully reversible. Therefore, the proponent's assessment indicated that the effects of the Project to fish and fish habitat would not be significant after taking the implementation of mitigation measures into consideration.

7.1.2 *Views expressed*

Federal Authorities

Environment and Climate Change Canada was concerned about seepage from the unlined sedimentation ponds and requested a description of the monitoring plan, potential environmental effects, and mitigation measures that would be implemented if seepage is detected. Environment and Climate Change Canada also advised that under the *Metal Mining Effluent Regulations*, the definition of effluent includes seepage and surface drainage. The proponent committed to developing an effluent monitoring program downstream of the HowseA sedimentation pond discharge point to detect if any seepage is occurring. The proponent stated that the main environmental impact from any seepage would be from total suspended solids; therefore, the proponent committed to using coagulant agents as a chemical treatment in the sedimentation ponds if seepage of total suspended solids is detected at elevated levels for extended periods of time. It further explained that adding coagulants would remove additional suspended solids from the pond water prior to infiltration into the pond bottom, thereby reducing the amount of total suspended solids in any seepage. Environment and Climate Change Canada was satisfied with the proponent's monitoring and mitigation plan for sediment pond effluent, and reiterated that, regardless of the treatment options evaluated or used, the proponent would be subject to the requirements of the *Metal Mining Effluent Regulations*, and for parameters not regulated under those regulations, the pollution prevention provisions of the *Fisheries Act*.

Natural Resources Canada expressed concerns about the potential impact of groundwater drawdown from mine pit de-watering on Triangle and Pinette Lakes and requested that the proponent conduct additional field work and revise its hydrogeological model. The proponent did not conduct additional field work, but did revise its hydrogeological model based on input from Natural Resources Canada. Despite the revisions to the model, Natural Resources Canada still noted the uncertainty regarding whether there is any connectivity between Triangle Lake and groundwater, but was satisfied with the mitigation measures presented and the monitoring and follow-up program proposed by the proponent to validate its prediction that water levels of Triangle Lake would not likely be affected by the Project.

Fisheries and Oceans Canada requested additional information on the proponent's strategy for monitoring water quality and quantity to determine potential effects on fish and fish habitat. The proponent committed to developing a robust schedule for monitoring mine effluent and water quality and integrating it with the existing monitoring program for the DSO project, which is conducted by an environmental staff scientist. The proponent indicated the program would consist of a daily inspection, weekly sampling of the sedimentation pond discharge, quarterly monitoring of all streams, and would follow the protocols of the *Metal Mining Effluent Regulations*. Fisheries and Oceans Canada indicated that if the water monitoring results reveal unforeseen or immitigable impacts to fish or fish habitat, such as draw down or flooding of any water bodies substantially beyond what is predicted, it has means to address such effects, including an authorization mechanism that could require offsetting (compensation) measures for any associated loss of fish habitat.

Fisheries and Oceans Canada disagreed with the proponent's original assessment that the timing of sediment pond discharge in the spring would be favourable towards fish and fish habitat because fish eggs and fry would still reside on the creek bed. The proponent acknowledged that timing would be unfavourable, but stated that its original assessment of no significant effects remained unchanged (discussed in the proponent's analysis above).

Fisheries and Oceans Canada was satisfied with the proponent's responses and would work with the proponent to develop specific monitoring requirements.

Indigenous Groups

Both the Naskapi Nation of Kawawachikamach and the Nation Innu Matimekush-Lac John expressed concern about the Project's potential effects to fish and fish habitat. Both groups noted that the Project could result in effects to fish health and fish populations in nearby watercourses as a result of degraded water quality, vibrations from blasting, accidents and malfunctions, as well as other potential project effects, and requested assurance that mitigation and monitoring would be in place.

Both groups requested that the proponent install a water quality monitoring station near Howells River, a location close to community fishing grounds. The proponent indicated that Howells River is too far downstream and no effects are expected. The proponent stated that monitoring would occur further upstream, including at the outlets of Triangle and Burnetta Lakes.

In addition to the water quality parameters that the proponent proposed to monitor, the Naskapi Nation of Kawawachikamach requested that the proponent monitor iron concentrations in the effluent discharge.

7.1.3 *Agency analysis and conclusion*

Analysis of the Effects

The Agency is of the view that limiting the maximum allowable explosive charge per delay to 1092 kilograms and using time-delay blasting techniques would likely eliminate any potential fish mortality associated with blasting.

The Agency agrees with the proponent that the Project would likely affect water quality intermittently throughout the 15-year duration of the proposed Project, as releases of total suspended solids to local water bodies could occur during spring thaw and large rainfall events, when the sedimentation ponds are expected to overflow. This could result in reduced water quality at some Brook Trout spawning grounds or benthic invertebrate habitats in Goodream Creek and potentially impact fish habitat in Triangle Lake. However, the Agency also agrees with the proponent that the effects on water quality would be low in magnitude and reversible within the project area once the Project ceases, and notes that Fisheries and Oceans Canada was satisfied with the proponent's assessment and conclusions. In addition, the Agency recognizes that the proponent would be required to comply with the *Metal Mining Effluent Regulations* and subsection 36(3) of the *Fisheries Act* regarding the deposit of effluent from the Project in water frequented by fish, which are administered by Environment and Climate Change Canada.

The Agency agrees with Natural Resources Canada that there is still some uncertainty as to whether Triangle Lake is connected to groundwater and therefore could be affected by groundwater drawdown during pit dewatering. However, the Agency acknowledges that Natural Resources Canada is satisfied with the groundwater and surface water monitoring and mitigation program committed to by the proponent. Therefore, the Agency considers any impact of pit dewatering on fish and fish habitat to be low in magnitude and reversible in nature. In the unlikely event that decreases in water levels beyond those predicted are detected, and these cannot be corrected by increasing discharge from the HowseA sediment pond, the Agency notes that Fisheries and Oceans Canada would still have a mechanism to authorize any loss of fish habitat, and require appropriate offsetting measures. If authorization and offsetting is required, Fisheries and Oceans Canada would consult with the local Indigenous groups prior to issuing any authorization or approving any compensation plan.

The Agency concludes that any effects of the Project on the local study area's fish communities would not represent a regional risk, as the potentially affected species and habitats are both prevalent throughout the region, and the local study area could be repopulated after mine closure. Once water quality is returned to normal, the spring thaws would be expected to carry any fine sediment that may have accumulated on the Goodream Creek bed downstream to settle in the lakes. The Agency is of the view that, if fish were to periodically evacuate the local area while the Project is ongoing, these habitats would be quickly recolonized by individuals from the larger unaffected downstream populations as conditions improve.

Key Mitigation Measures

After considering the proponent's analysis of effects, expert advice from government authorities, and comments received from Indigenous groups, the Agency identified the following measures to mitigate impacts on freshwater fish and fish habitat:

- Implement erosion and sedimentation control measures within the project area during all phases of the Project to avoid the deposit of deleterious substances in waters frequented by fish.

- Collect all site water via a network of surface ditches and in-pit dewatering pumps and convey it to one of two sedimentation ponds to reduce total suspended solids prior to discharge into Goodream Creek.
- Limit the blast charge per delay to below 1092 kilograms to protect fish and fish eggs against both vibration and overpressure.
- Use a time-delay blasting technique to minimize the effects of noise and ground vibration on spawning fish and fish eggs.
- Manage waste rock acid generation during operation taking into account the Mine Environment Neutral Drainage Program's *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials*.
- Develop and implement a communications plan with Indigenous groups to ensure they are regularly kept informed and can provide feedback on key issues related to potential effects of the Project on fish and fish habitat (see Section 7.4 for additional detail).

Need for and Requirements of Follow-up

The Agency considered the follow-up and monitoring programs proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the following programs to verify the predictions of effects to fish and fish habitat and the effectiveness of mitigation measures:

- Monitor water quality and quantity parameters as per the proposed framework the proponent committed to in its Water Management Plan (October 2015), including, but not limited to:
    - installing automated water level gauges on Triangle Lake, Morley Lake, Burnetta Lake, and Pinette Lake and a groundwater monitoring well in close proximity to both Triangle Lake and Pinette Lake to monitor surface and groundwater levels and to verify the prediction of no connectivity between groundwater and water bodies;
    - monitoring effluent quality, including iron concentrations, from the HowseA and Timmins4 sedimentation ponds and its effects on the receiving environment to determine the effectiveness of effluent mitigation measures, in accordance with the *Metal Mining Effluent Regulations* and requirements under Section 35 of the *Fisheries Act,* and in consideration of the *Canadian Council of Ministers of the Environment's Water Quality Guidelines for the Protection of Aquatic Life*;
    - installing a water quality monitoring station downstream of the HowseA sedimentation pond discharge point to measure for downstream seepage; and
    - installing water quality monitoring stations in Triangle Lake, Brunetta Creek, Brunetta Lake and Pinetta Lake.
- Update the hydrogeological model after each phase of mine pit development, based on the results of the monitoring program, to better predict the impact of the next pit phase on groundwater.
- Monitor changes in fish and fish habitat down gradient of the Project, including in Triangle Lake, Burnetta Lake, Pinette Lake, and Goodream Creek.

Conclusion

The Agency concludes that the Project is not likely to cause significant adverse environmental effects on fish and fish habitat after taking into account the implementation of the key mitigation measures identified by the Agency.

7.2 Migratory Birds

The Agency focused its assessment of effects on migratory birds, defined in the *Migratory Birds Convention Act, 1994*, on habitat loss and alteration,[10] and sensory disturbance (i.e. artificial light and noise).

7.2.1 *Proponent's assessment of environmental effects*

Predicted Effects

The proponent conducted four avian studies, including in the Howse project area, between 2009 and 2015 for various mine projects in the regional study area. The proponent also referenced two Aboriginal Traditional Knowledge studies and two database searches as part of its assessment. The proponent stated that all ecological habitat types present in the local study area and regional study area were surveyed, including wetlands, open coniferous forests, tundra, shrub land, rocky outcrop or bare ground, and lakes.

The proponent stated that during the summer breeding season 86 species of migratory birds were observed in the regional study area and 39 species in the local study area. Five migratory bird species at risk were observed or have the potential to occur in the regional study area. The effects of the Project on species at risk are further discussed in Section 8.3. None of the birds listed under the *Species at Risk Act* were observed in areas of planned construction.

The proponent predicted that migratory birds may experience adverse effects during the Project as a result of habitat loss and alteration and sensory disturbances (i.e. artificial light and noise).

The proponent stated that the majority of habitat loss and alteration is expected to occur with the clearing of vegetation and the removal and stockpiling of overburden and waste rock. It indicated that the project footprint during operations could cause the loss or alteration of 260.8 hectares of breeding bird habitat. This includes 11.5 hectares of wetlands, which translates to 3.5 percent of the wetlands in the local study area (331.7 hectares) and 0.5 percent of the wetlands in the regional study area (2243.2 hectares). The proponent concluded that no unique bird habitats critical for the survival of any bird species were found in the project area.

The proponent has also stated that it would restore the project area during the decommissioning and reclamation phase.

The proponent indicated that the Project would cause sensory disturbances to birds in the area due to noise from drilling, blasting, and heavy machinery. In addition, the proponent stated that illumination in the mine area could alter avian behavior, which could affect predation, communication, reproduction, and possibly result in nest abandonment.

[10] Habitat loss or alteration was examined as a potential change to the environment, which could lead to an impact to migratory birds and have an effect on Indigenous peoples.

Proposed Mitigation, Monitoring, and Follow-up

The proponent committed to several mitigation measures to minimize the risks of the Project on migratory bird species, which are explained in more detail in Appendix C; however, some of the key mitigation measures include:

- conduct vegetation clearing in accordance with the Environment and Climate Change Canada guidelines on *General Nesting Periods of Migratory Birds in Canada* and, where possible, schedule such activities outside of the identified migratory bird nesting periods (i.e. May 10 to August 10);
- complete a nest survey (conducted by a bird expert) if any vegetation clearing is required during the breeding period;
- protect any nests found during stripping activities that went undetected during the nest survey with a buffer zone, the distance of which would depend on the species;
- implement a 75 metres wide protection strip adjacent to wetlands if any work must be done during the nesting period, specifically for the protection of the Rusty Blackbird;
- conduct surveys of the mine pit walls for Bank Swallow in early and mid-summer each year during the operations phase. Appropriate deterrence measures (e.g. noise, plastic covering of pit walls) would be taken when necessary;
- restrict vehicles from entering any undisturbed wetlands and maintain a minimum 20 metre wide buffer strip along watercourses and waterbodies, in compliance with the Newfoundland and Labrador *Forestry Act*;
- limit blasting during all project phases to approximately once per week during summer and infrequently during winter, as part of the mitigation measures for noise disturbance;
- conduct blasting in a way that would ensure air pressure measured at receptors is less than 128 decibels, to reduce the disturbance on birds;
- reduce light intensity when weather forecasts are extreme, such as during thick fog or intense snowstorms, during migration periods to minimize light attraction; and
- use direct, focused artificial light at controlled levels and only where necessary for worker safety.

Based on recommendations from Environment and Climate Change Canada, the proponent also developed management plans for the Rusty Blackbird and Bank Swallow, and committed to not flagging individual nests to avoid increasing the risk of nest predation and only implementing Bank Swallow deterrence measures outside of the breeding season.

Some of the main monitoring activities proposed by the proponent include:

- inspect wetlands annually to ensure that the loss of wetland habitat does not exceed what was predicted;
- conduct a wetland disturbance survey every five years;
- install groundwater monitoring wells near wetlands, prior to the start of construction, as part of the monitoring program to ensure pit dewatering does not affect wetland water levels; and
- conduct breeding bird and species at risk surveys in the local study area every year for the first three years following completion of construction, to verify the proponent's predictions. After three years, if the predictions are verified, the proponent would reduce the frequency of the monitoring surveys to

once every five years to track any changes in bird populations. The proponent stated these surveys would begin at the end of the construction phase, be conducted in a similar fashion to the pre-construction surveys, and include all habitat types found in the local study area.

Predicted Residual Effects

The proponent stated that because no unique bird habitats were found in the project area and the amount of habitat to be disturbed by the Project is small relative to the availability of suitable habitat adjacent to the project footprint, migratory birds affected by the Project would find alternate breeding grounds nearby.

The proponent concluded that, with implementation of the proposed mitigation measures, the residual effects of the Project on migratory birds would be low or moderate in magnitude, depending on the avifauna group or species, and the overall effect of the Project on migratory birds would not be significant.

7.2.2 Views expressed

Federal Authorities

Environment and Climate Change Canada provided advice to the proponent regarding the development of an avifauna management plan and deterrence measures for Bank Swallow nesting. The proponent incorporated recommendations from Environment and Climate Change Canada into its mitigation and monitoring plans. Environment and Climate Change Canada was satisfied with the proponent's responses and proposed measures to reduce the Project's effects on migratory birds.

Aboriginal Groups

The Innu Nation and the Nation Innu Matimekush-Lac John were concerned about the effects to migratory birds caused by the presence of helicopters in the area. The proponent stated that environmental monitoring would be mainly conducted by truck or on foot and that helicopter activity would be limited to a maximum of seven days per year.

The Innu Nation requested more detail on the monitoring for wetland drawdown, including whether the scope of monitoring would include wetlands outside the zone of influence for comparison of effects. The proponent committed to monitoring wetland drawdown using monitoring wells, indicating these: are effective in detecting modifications in the water levels of wetlands, are measurable and replicable, and can be measured throughout the life of the mine. The proponent stated that it is difficult to compare two wetlands (control and in the vicinity of the pit) as both need to possess the same or similar physical and biological characteristics, which can be very challenging, especially during the proposed monitoring cycle as plant communities could change over time in one or both of the wetlands.

7.2.3 Agency analysis and conclusion

Analysis of the Effects

The Agency agrees with the proponent that the Project would reduce habitat available for migratory birds in the local study area. However, the Agency notes that the effects would be restricted to the local study area and the amount of habitat lost due to the Project is small compared to available habitat in the regional study area. Further, the Agency concurs with the proponent's determination that no habitats in the local study area are

unique or critical for the survival of any bird species. Therefore, the Agency considers the potential residual loss of habitat to be low in magnitude.

The Agency notes that the Project would be carried out in a manner that protects and avoids harming, killing or disturbing migratory birds, or destroying or taking their nests or eggs. This goal may be achieved through various means, such as only conducting clearing activities outside the breeding period or conducting nest surveys and buffering any occupied nests until birds have fledged.

The Agency concurs with the proponent that noise and light produced by the Project could deter birds from the area or alter their behavior. The Agency considers these sensory effects to be temporary and localized. The Agency concludes that the residual effects due to sensory disturbances would be low to moderate in magnitude, extend for the life of the Project, and be reversible after decommissioning.

Key Mitigation Measures

The Agency considered the mitigation measures proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the following key mitigation measures to mitigate impacts on migratory birds:

- Carry out all phases of the Project in a manner that protects and avoids harming, killing or disturbing migratory birds, or destroying or taking their nests or eggs, including conducting clearing activities outside the breeding period of May 10 to August 10, when possible. In this regard, take into account Environment and Climate Change Canada's *Avoidance Guidelines*. The proponent's actions when taking into account the *Avoidance Guidelines* shall be in compliance with the *Migratory Birds Convention Act, 1994* and with the *Species at Risk Act*.
- Restrict vehicles and heavy equipment from entering unaltered wetlands and ensure no vehicle, machinery and equipment cleaning, fueling and maintenance or storage of potentially harmful substances occurs within 20 metres of any wetland.
- Limit blasting to an average of once per week during summer.
- Control lighting required for the construction, operation, and decommissioning of the Project including direction, timing, and intensity to avoid effects on migratory birds, while meeting health and safety requirements.
- Survey the mine pit walls annually during the nesting period to determine if Bank Swallows are using the open pit as a nesting site. In addition, during the nesting period, undertake Bank Swallow surveys one to two days before conducting any work in a location within the project area where Bank Swallows may occur. Notify relevant authorities if Bank Swallows are found on site. Identify, in consultation with relevant authorities, and implement a buffer zone in which no project activities shall take place around any surveyed nests. The setback distance shall be maintained until the young have permanently left the area of the nest. If Bank Swallows are found, implement additional measures to deter Bank Swallows from nesting in the area prior to next breeding period.

Need for and Requirements of Follow-up

The Agency considered the follow-up measures proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the following follow-up measures to verify the predictions of effects to migratory birds and the effectiveness of mitigation measures:

- Conduct a wetland disturbance survey every five years for the life of the Project.
- Install, prior to the start of construction, at least three groundwater monitoring wells that focus on the wetlands located north of the pit, as part of the monitoring program to ensure pit dewatering does not affect wetland water levels. The wells are to be spaced 50 metres apart and measurements taken every two weeks from the start of operations until dewatering has ended.
- Develop and implement, in consultation with Indigenous groups and Environment and Climate Change Canada, a program to determine the effectiveness of all mitigation measures to avoid harm to migratory birds, their eggs and nests. As part of this program, conduct post-construction breeding bird surveys and species at risk surveys, similar to the pre-construction surveys, in the local study area every year for the first three years to verify the proponent's predictions. After three years, determine, in consultation with Indigenous groups and Environment and Climate Change Canada, the frequency of additional surveys based on the results of the follow-up program.

Conclusion

The Agency concludes that the Project is not likely to cause significant adverse environmental effects on migratory birds after taking into account the implementation of the key mitigation measures identified by the Agency.

7.3 Physical or Cultural Heritage, and Historical or Archaeological Sites or Structures

This section describes potential adverse effects on Indigenous physical and cultural heritage and structures, sites, or things that are of historical and archaeological significance. The Agency considered the Project's effects on archaeological resources but focused its assessment primarily on the potential effects to Kauteitnat Mountain (also known as Irony Mountain or Heart Shaped Mountain). Kauteitnat is highly valued for its role in current use activities, and the mountain is considered a sacred cultural landscape in the region that has cultural and spiritual significance. The Project has the potential to affect Kauteitnat through direct impacts to the mountain itself, by affecting access to the mountain, and by affecting the user's experience and sense of place.

7.3.1 *Proponent's assessment of environmental effects*

Predicted Effects

Archaeology

The proponent noted that previous archaeological research has been conducted in the vicinity of the Project and in the surrounding region, which resulted in the discovery of prehistoric sites, as well as numerous Indigenous sites from the contemporary period. For example, a survey conducted in 2011 along the Goodwood-Timmins road yielded a prehistoric site located approximately 3.5 kilometres from the Project.

In 2008, the proponent conducted a historic resource assessment for the DSO project, which included the project area, and no archaeological sites were identified. In 2014, the proponent conducted another historic resource assessment for the specific needs of the Project. The assessment did not identify any prehistoric resources, but did identify more recent (i.e. 20th-century) resources. Resources identified included recent firepits, a wooden sign with no remaining text, and a large teepee.

Given the absence of archaeological or prehistoric sites in the project area, the proponent did not consider paleontological, historical, and heritage sites as a valued component in the EIS.

Physical Effects to Kauteitnat

Kauteitnat is a mountain located approximately 25 kilometres from Schefferville and has an elevation of 914 metres, making it one of the higher points of elevation in the area and a unique topographic landmark. The Howse pit would be located approximately 500 metres from the base of Kauteitnat.

The proponent described Kauteitnat as a historic and contemporary landmark with major cultural and spiritual significance, recognized and valued by both the Innu and the Naskapi. The proponent further acknowledged that the topographic relief provided by the mountain is unique in the local study area and therefore provides an important hunting observation point.

According to an Innu elder, a burial site can also be found on Kauteitnat. The proponent noted that there would be no interference with such a site because the Project would not extend to Kauteitnat.

Kauteitnat is an important cultural symbol to the Innu (Matimekush-Lac John and Uashat mak Mani-Utenam Innu), who value the mountain's intricate ties with local resources. Innu-Aitun (i.e. Innu traditional knowledge) considers there to be a sacred aspect to Kauteitnat for the Innu. Indigenous groups described Kauteitnat as having a long and rich history, including its geological history. Indigenous elders are very attached to Kauteitnat and the proponent noted that many (if not all) Indigenous people whom it consulted were concerned about the close proximity of the Project to the mountain.

The proponent stated that, culturally, Kauteitnat is less significant for the Naskapi; however, it still provides a strategic, well-located and convenient site for caribou hunting and a repository of food resources for wildlife.

The proponent confirmed that the Project should not affect the mountain itself, including its geology or stability. However, project activities, such as construction, pit development, transportation, ore extracting, blasting, waste storage, and use of heavy machinery, have the potential to interact with Kauteitnat by altering viewscapes from the mountain and of the mountain; by increasing noise, light, vibrations, and dust; and by increasing traffic and human presence around the mountain. The Project would permanently alter the landscape around Kauteitnat, as the pit would be located approximately 500 metres from its base. These changes to the environment would also affect the cultural symbol that is Kauteitnat for the Innu. Increased noise and dust resulting from project activities may result in Indigenous people avoiding Kauteitnat. The proponent stated that visits to Kauteitnat have decreased to very few since 2013 when mining activities resumed in this area. The proponent characterized visits to Kauteitnat generally as infrequent, limited to summer, and occurring once or twice per year for a half-day outing at a time. The proponent noted that gatherings at Kauteitnat may be further avoided or reduced as a result of the Project.

The Project would also result in the destruction of the road currently used to access Kauteitnat. However, the proponent committed to upgrading and maintaining a bypass road. The potential effects of the Project on access to lands used for traditional activities are discussed in Section 7.4.

Proposed Mitigation Measures, Monitoring, and Follow-up

The proponent stated that it modified the project design by locating the open pit as far as possible from the foot of Kauteitnat. The proponent also committed to managing waste rock to minimize impacts on viewscapes, including limiting the height of waste rock piles and storing some waste rock within mined-out portions of the open pit. The proponent would also decommission and restore the project area to give the pit and waste rock piles a natural look following closure, which would include attempting to stabilize and revegetate the waste rock piles and allowing the remaining portions of the open pit to fill with water. The proponent would also continue to play a role, as appropriate, to have other existing mining claims covering Kauteitnat transferred from the province to the local communities and designated a no-mining area and/or protected area.

The proponent proposed additional mitigation measures to reduce the Project's potential impacts on Kauteitnat, including the following:

- announce planned blasting activities on the local radio station two days ahead of time and collaborate with local Indigenous groups to adapt mining activities to allow Indigenous groups to practice traditional activities on Kauteitnat in a noise-free environment;
- refrain from undertaking mining activities directly on Kauteitnat;
- implement a mixed conventional and in-pit mining technique to reduce the size of waste piles outside the pit;
- install signs identifying a 500 metre buffer zone between the foot of Kauteitnat and all mining infrastructure and activities; and
- implement a cultural heritage control plan to protect any cultural heritage resources that could be directly affected by construction activities. Should a discovery be made during any project phase, the appropriate means would be taken to protect such resources.

The proponent indicated that Impact Benefit Agreements are in place with all five Indigenous communities affected by the existing DSO project, and the proponent intends to upgrade these agreements to include the Project. Provisions in these agreements related to environmental mitigation measures would also apply to the Project including, for instance, the protection of Kauteitnat from development and exploratory work. Additionally, the proponent indicates that there would be compensatory measures for the loss of enjoyment of the site and increased difficulty accessing it.

Some mitigation measures identified in Section 7.4, such as the restoration and maintenance of a bypass road around the mine site so the community can continue to access Kauteitnat, also reduce potential adverse effects to physical or cultural heritage.

Predicted Residual Effects

The proponent concluded that there would be indirect, adverse residual effects on the preservation of and access to Kauteitnat due to the destruction of the access road to Kauteinat, the alteration of the landscape

surrounding it, and disturbance from project activities; however, it concluded that with the implementation of mitigation measures these effects would not be significant.

7.3.2 *Views expressed*

Indigenous Groups

The Innu of Matimekush-Lac John stated that Kauteinat has special meaning as a sacred and spiritual place. It is considered a unique environment by the Innu and is deeply rooted in Innu culture. Specifically, the group noted that the mountain is an important topographic centre and has all the attributes and advantages required for traditional activities and knowledge transfer. Among other valued attributes, it is associated with traditional knowledge transfer for sighting and hunting caribou. The Innu of Maitmekush-Lac John believe that Kauteitnat belongs to all Innu and that it inspires the practice of rites of thanks for the benefits it provides. This makes it a sacred mountain that must be appreciated and protected.

The placement of the mine in close proximity to the mountain has continued to be a major issue for the Nation Innu Matimekush-Lac John. Community members indicated that the mine would impact upon the use and enjoyment of Kauteitnat and diminish the experience of going there. Furthermore, Indigenous groups fear that, given the ongoing expansion of mining in the region and the Project's proximity to Kauteitnat, mining may eventually extend to the mountain itself. The Nation Innu Matimekush-Lac John has underscored that mining is incompatible with the use and enjoyment of Kauteitnat and many local Indigenous community members indicated that this should be the last iron ore project to go forward in this area to preserve the remaining integrity of natural resources, landscapes, and trap lines.

Given the proximity of the pit to the base of Kauteitnat, the Nation Innu Matimekush-Lac John suggested that residual effects of the Project on Kauteitnat would not be low, and insisted that the 500 metre protective buffer around Kauteitnat must be respected. The proponent agreed to place signage to clearly delineate the buffer zone, and the Nation Innu Matimekush-Lac John stated it would also mark the buffer zone with signs in fall 2017. Despite this mitigation being agreed to by the proponent, the Nation Innu Matimekush-Lac John noted that the protective buffer around Kauteitnat may not be sufficient to guarantee the integrity of the site.

Although Kauteitnat does not have the same symbolic or ritual significance for the Naskapi as compared to the Innu of Matimekush-Lac John, the Naskapi consider the mountain as a strategic, well-located and convenient site for caribou hunting and an important repository of food resources for wildlife. The Naskapi indicated that Kauteitnat is a part of its heritage in that it provides an ideal location to practice traditional activities, and is unique not only in how it is used, but also for the concentration of wildlife that feeds, stops, mates and rests there. Like the Innu, the Naskapi also value Kauteitnat as an area for transferring traditional knowledge and an area to bring youth to learn about traditional life and practices, and harvesting techniques.

7.3.3 *Agency analysis and conclusion*

Analysis of the Effects

The Agency notes that the value of heritage for any structure, site or thing originates from its:

- association with one or more important aspects of human history or culture;
- historical archaeological, paleontological, or architectural significance; and

- association with a particular group's practice or customs.

Historic or Archaeological Sites or Structures

The Agency believes the proponent's archaeological research and historic resource assessments were sufficient to gain an understanding of the archaeological significance and potential of the project area, and notes that no prehistoric sites were identified within the project footprint. The Agency also notes the proponent's commitment to develop and implement a cultural heritage control plan to protect any cultural heritage resources that could be directly affected by construction activities. Given the absence of any known or likely archaeological or prehistoric sites, and the proponent's commitment to protect any resources should a discovery be made, the Agency believes that any effect on historical or archaeological sites or structures would be unlikely.

Kauteitnat

The Agency notes that Kauteitnat is a unique topographic feature and that there are few similar elevated areas in the region. For both the Innu of Matimekush-Lac John and the Naksapi of Kawawachikamach, Kauteitnat is an important observation point for caribou (during times when caribou populations have been present in the area and caribou are harvested) and is important for transferring traditional knowledge. For the Innu of Maitmekush-Lac John, Kauteitnat is a cultural landscape feature with special meaning as a sacred and spiritual place. It is linked to the group's cultural identity, and plays a role in the expression and retention of its culture.

The Agency notes that as a result of the alternative access that would be provided by the proponent (Section 7.4), as well as a buffer to protect the physical integrity of the site, use of Kauteitnat could continue throughout the life of the Project. Furthermore, the Agency also notes that use of Kauteitnat has continued, albeit at lower levels of intensity, despite existing mining activity within less than 5 kilometres of Kauteitnat.

The Project would be located northeast of Kauteitnat, which is in a similar general direction, albeit much closer, as the existing mining activity. The Project would therefore not affect viewscapes in more undisturbed directions, including towards Rosemary Lake and the Howells River valley. Nevertheless, the Agency believes that the proposed mining activities in such close proximity to Kauteitnat may result in decreased use of the mountain. The quality of the experience of those wishing to use the mountain would be diminished by the dust, noise, and light from the Project, as well as the altered viewscape as a result of the pit, stockpiles, and waste piles. The Agency considers the requirement for the proponent to limit blasting and to manage blasting activities, reduce noise, as well as implement a protective buffer between the base of Kauteitnat and the Project as important measures to protect the integrity of the mountain itself and to limit the effects on the user's experience.

Additionally, the Agency also considers that any effect on the mountain or the user's experience could result in a decreased ability of communities, in particular the Innu of Matimekush-Lac John, to transfer cultural practices and learning at the site. This, in turn, could further erode the connection between the Indigenous communities, their cultures, and the natural landscape.

The Agency predicts that residual effects to Kauteitnat, including to users' quality of experience and sense of place, would be moderate in magnitude. These residual effects would result in a change from baseline conditions, and the feature of physical and/or cultural heritage importance (i.e. Kauteitnat) would be noticeably changed. Activity and use associated with the feature and its value would be affected, but use could continue.

The residual effects on the viewscape, as well as indirect effects from noise and dust, would extend to the local assessment area and are considered long term. Indirect effects from noise and dust would be continuous throughout the construction and operation phases of the Project (approximately 15 years), following which these effects would diminish. Effects on viewscapes would be permanent.

Following project decommissioning and closure, much of the disturbance associated with the Project to users of Kauteitnat would cease (e.g. light, noise, presence of personnel) and the magnitude of the residual effects would be diminished. However, although the proponent committed to rehabilitating the site as much as feasible, the Agency notes that the landscape would be permanently altered and waste rock piles would not likely revegetate for many years due to challenges associated with local conditions and the regional climate.

Key Mitigation Measures

The Agency considered the mitigation measures proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the following key mitigation measures as necessary to mitigate adverse environmental effects on physical and cultural heritage:

- Refrain from blasting for up to 24 hours, if given 48 hours' notice and if requested by Indigenous groups, when Indigenous groups are using Kauteitnat.
- As part of an overall plan for communications with Indigenous groups, announce weekly blasting schedules via local radio stations and ensure local band councils are notified of blasting schedules as far in advance as possible, but with a minimum 48 hours' notice (see Section 7.4 for details regarding the communications plan).
- Limit blasting to no more than twice per week and no more than five times per month during the months of June, July, August, and September.
- Design waste rock piles and overburden stockpiles using a qualified individual, and in consultation with relevant authorities and Indigenous groups and in consideration of reducing effects on viewscapes.
- Refrain from undertaking any activities directly on Kauteitnat.
- Implement a buffer zone between the foot of Kauteitnat and all mining infrastructure and activities, in which no mining activity would take place. Post signs identifying the buffer zone.
- Restrict the blast charge per delay to below 1092 kilograms to reduce noise and vibration.
- If complaints are received related to noise, implement corrective actions to reduce the effects from noise such as reducing drilling speed or using a noise shroud and mobile noise screen, or equivalent technology, around drills during operation.
- Develop and implement a cultural heritage control plan. If an archaeological discovery is made, implement measures to ensure protection of the resources.
- Conduct progressive rehabilitation of the project area during all phases of the Project and complete rehabilitation of the project area following the operation phase of the Project (see Section 7.5 for additional details).
- Develop and implement a communications plan with Indigenous groups to ensure Indigenous groups are regularly kept informed and can provide feedback on key issues related to the Project (see Section 7.4 for additional details regarding the communications plan).

Need for and Requirements of Follow-up

The Agency considered the follow-up measures proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the following follow-up measures to verify the predictions of effects to physical and cultural heritage and the effectiveness of mitigation measures:

- Monitor noise levels at sensitive receptor sites nearby, including on Kauteitnat, and implement modified or additional mitigation measures if noise levels at these sites exceed five decibels above the background noise levels as a result of the Project, except during blasting.

Conclusion

The Agency concludes that the Project is not likely to result in significant adverse environmental effects on physical and cultural heritage after taking into account the implementation of the key mitigation measures identified by the Agency.

7.4 Current Use of Lands and Resources for Traditional Purposes

The Agency assessed the potential effects of changes to the environment on the current use of lands and resources for traditional purposes by considering effects on the following: access to lands and resources used for traditional purposes; subsistence and traditional caribou hunting; and other subsistence and traditional activities (e.g. small game and waterfowl hunting, fishing, trapping, berry/plant harvesting). In assessing the overall effects on current use and in determining the significance of these effects, the Agency considered changes to: availability of resources; access to lands and resources; quality of resources; and quality of the overall experience for Indigenous people using the land and resources.

7.4.1 *Proponent's assessment of environmental effects*

Predicted Effects

All phases of the Project have the potential to cause changes to the environment that would affect the current use of lands and resources for traditional purposes. The proponent defined the local study area as the populations most likely to be affected by the Project, namely the Town of Schefferville, Matimekush and Lac-John, Kawawachikamach, as well as the Innu community of Uashat and Mani-Utenam, which is located farther to the south, but whose members hold familial trap lines in the project area and travel there occasionally. In assessing current use, the proponent also identified a spatial area approximately 113 square kilometres roughly centered on the Project in which it studied current and traditional land use activities (referred to in this report as the land use study area). The proponent did not define a regional study area for this valued component stating effects would only occur locally.

Access

The project footprint overlaps an existing road that is used by Indigenous people to access territories and lands used for traditional purposes, including Kauteitnat, Pinette Lake, and the Howells River Valley. This road would be permanently removed to accommodate the Project, resulting in the loss of access to preferred current and historically used lands. As a result, the proponent concluded that current use activities in these areas could be affected either through loss of access or as a result of increased cost and travel time associated with alternate access routes.

Subsistence and Traditional Caribou Hunting

The proponent noted that caribou hunting is an important cultural activity and food source for both the Naskapi Nation of Kawawachikamach and the Nation Innu of Matimekush-Lac John. Project activities have the potential to affect caribou through loss or alteration of habitat, anthropogenic disturbance, and direct mortality (Section 6.2). By extension, these potential effects may affect subsistence and traditional caribou hunting activities.

Except for very uncommon exceptions, caribou harvested in the land use study area are from the George River Caribou Herd. The proponent outlined several sites within the land use study area that are used for caribou hunting, including the western side of Kauteitnat.

As described in the proponent's *Study on Land and Resource Use by the Innu and Naskapi*, the recent population decline of the George River Caribou Herd in the land use study area has resulted in current restrictions on hunting (i.e. full hunting ban in Labrador and sport hunting ban in Quebec), which has affected the way of life of the Naskapi of Kawawachikamach and the Innu of Matimekush-Lac John. These Indigenous groups now have to find alternative hunting opportunities, which can be costly and require longer journeys north. The proponent indicated that caribou harvesting also has a strong socio-cultural value for these groups, and has been important for the transmission of traditions, knowledge, and language. Should the Project negatively impact upon caribou populations, it could in turn affect this important socio-cultural element.

While traditional knowledge and science indicate that fluctuations in caribou herd populations, including the George River Caribou Herd, are cyclical, the recent decline is unprecedented. The proponent noted that the population is still decreasing and believes there is no prospect of recovery or return to the project area or Schefferville area in the foreseeable future. However, the proponent also noted that, should the George River Caribou Herd population recover and expand its range, caribou would likely avoid the land use study area during the life of the Project due to noise and other disturbances resulting from project activities.

The proponent is of the view that because there are currently no caribou in the land use study area and caribou are unlikely to return over the life of the Project, and because there is a hunting ban in Labrador, project effects to subsistence and traditional caribou hunting are low in magnitude and unlikely. Furthermore, the proponent noted that, although caribou may avoid portions of the land use study area if they do return to the region, given the existing mining exploration and exploitation activities, the Project's contribution to the effects on caribou hunting would be minimal and that other areas would remain available for hunting. The proponents also noted that any effects of the Project on caribou and caribou hunting would be fully reversible and not significant.

Other Subsistence and Traditional Activities

Fishing

Lake Trout, Brook Trout, Arctic Char, Cisco, and Landlocked Salmon are found in the lakes of the land use study area and beyond, and are the main species harvested by Indigenous fishers. Both the Naskapi of Kawawachikamach and the Innu of Matimekush-Lac John fish in the land use study area during the summer and fall, and ice fish during the winter months. For the most part, fishing occurs on Pinette Lake, Triangle Lake, and Rosemary Lake. Fishing may be affected as a result of the Project's effects on fish and fish habitat (Section 7.1).

The proponent stated that the Project may also directly impact upon fishing activities, primarily during the construction and operations phases. Project activities would result in noise, vibration, and changes to the visual landscape, which may lead to a lower quality fishing experience and possible avoidance of fishing areas, particularly at Pinette Lake which is adjacent to the pit. Fishing activities may also decrease in the vicinity of the project area because of concerns about contamination as a result of the proximity of a mining project to preferred fishing areas. Indigenous groups may avoid fishing in local watercourses that could be affected by changes in water quality due to discharge or seepage from the Project.

Although there could be avoidance of harvesting due to concerns about potential contamination, the proponent concluded that Indigenous users would still be able to access the same species of fish in similar quantities, at the same locations, for the duration of the Project. The proponent also indicated that fish would remain fit for consumption, and committed to conducting a country foods sampling program to confirm this prediction.

Hunting and Trapping

The proponent noted that, in addition to hunting caribou, both the Naskapi and the Innu hunt game birds and other mammals in the land use study area. Beaver is commonly harvested and is a regular part of the Innu's diet. Others species harvested include Mink, Silver Fox, American Marten, Lynx, Moose, and Black Bear. The proponent stated that hunting is, for the most part, opportunistic in nature and carried out throughout the project area and beyond.

The proponent reported that trapping is not as common as it once was for the Innu but does still occur around the project area and Schefferville. The proponent identified that the Innu believe the decrease in trapping activity may be the result of the amount of time required, and that it is difficult to manage trapping with full time work. Also, the proponent noted that the fur market is complex, which may deter participation in the activity. The proponent noted that trapping by the Naskapi is rare; however, it does occur opportunistically for species such as American Marten or Mink.

The proponent stated that waterfowl and game bird hunting occurs at many of the lakes in the area, including Rosemary, Pinette, and Triangle Lakes. Preferred harvested species include the Canada Goose, Grouse, ducks, and Ptarmigan. The proponent noted that Innu used to hunt in the project area, but because of mining activities the preferred nearby hunting area has changed to Rosemary Lake. The proponent noted that, for the most part, hunting of geese and other waterfowl by the Naskapi is favoured along the Howells River Valley and not within the project area.

Migratory bird hunting may be indirectly affected as a result of the Project's effects on migratory birds and their nests (Section 7.2). The proponent predicted that geese and other waterfowl may avoid the project area during migration or breeding periods due to disturbances associated with the Project. However, the proponent stated that Rosemary Lake, which is a preferred hunting area for migratory birds, is far enough from the Project that noise disturbance would not affect goose or waterfowl hunting success.

Despite a decline in trapping activity, the proponent noted that trap lines are present in the project area. The trap lines belong to two families who reside in Uashat. The proponent found that the trap lines would be permanently affected by the Project and unable to be used once the Project is developed. The proponent explained that the history of regulation and ownership of trap lines is complex and related to traditional

governance structures which were taken over by provincial governments in the middle of the 20th century. See Section 9.0 on impacts to rights for more discussion on impacts to traditional governance.

The proponent concluded that potential adverse effects to hunting and trapping from a current use perspective relate to potential impacts on access, the ability to practice subsistence and traditional activities, and increased costs associated with these activities. The proponent concluded that the magnitude of the residual effect on hunting and trapping activities would be low since access to the land would remain available, and many of the preferred hunting areas would not experience any change in resource availability or quality. The proponent also maintained that local land users currently have the opportunity to go elsewhere in the vicinity of Schefferville as similar harvesting sites can be found nearby.

Plant Gathering

The proponent stated that the fruits most commonly harvested by locals include blueberries, cloudberries, and alpine cranberries. Medicinal plants harvested in the project area include Labrador Tea and Tamarack Bark. The proponent noted that, for the most part, preferred sites for plant gathering are located outside the project area.

The proponent found that the Innu currently harvest plants in the Rosemary Lake area; however, in the past the group used two berry picking patches that overlap the Howse pit. The proponent noted that many people now avoid harvesting in these areas because of proximity to existing mining activities.

The proponent noted that the Naskapi gather berries along the foot of Kauteitnat, or in bogs in the surrounding area. Like the Innu, use of the project area has decreased or is avoided because of the noise associated with local mining activities. The proponent noted that dust generated by mining and traffic was identified as a concern and could contribute to the decrease in berry and plant gathering. The proponent stated that if given a thorough wash, berries harvested in the land use study area would be safe to consume. The proponent also maintained that these berries are common throughout the region and any potential loss of these plants or the ability of Indigenous groups to harvest them would be compensated by availability outside the project area.

Proposed Mitigation Measures, Monitoring, and Follow-up

In addition to measures proposed by the proponent that directly mitigate effects on the current use of lands and resources, mitigation measures that relate to valued components that support those uses would also indirectly mitigate effects on the current use of lands and resources for traditional purposes. For example, measures that would reduce the Project's effects on fish and fish habitat, migratory birds, caribou, physical and cultural heritage, and the health and socio-economic conditions of Indigenous peoples may also serve to mitigate the effects on the current use of lands and resources by Indigenous people. As such, mitigations aimed at other valued components have been considered in determining whether residual effects are expected.

To mitigate the loss of access from the Project, and to reduce the burden currently placed on users by existing mining activities, the proponent has upgraded an existing road which allows users to bypass the project area and access lands used for traditional activities, such as Kauteitnat, Pinette Lake, and the Howells River Valley. Except for during blasting activities, which are estimated to occur once weekly, access along the bypass road would be unimpeded. While the bypass road allows users to circumvent the project area and access lands which were previously accessible through crossing the mine's footprint, it increases the commute distance by 16 kilometres and associated fuel costs, which may affect ease and efficiency of movement between certain sites. As a result

of the increased distance, the proponent committed to contributing to a compensation fund so that land users can recover additional expenses associated with fuel costs.

Despite the increased distance, in certain cases the new bypass road may actually provide a faster and more convenient access route because of the lack of check-points and the need for a security escort. To use the existing road through the project footprint, which would be removed to accommodate the Project, individuals are required to travel through the DSO project complex, and must often wait at the security gate for an escort. Some community members have reported waiting more than an hour for an escort. The proponent also committed to maintaining the bypass road twice per year for the duration of the Project. As is the case with other existing old mining roads, it would not be plowed in the winter, and the proponent does not assume ownership of the road. Land users would also be allowed to travel through the project area with a proper security escort.

The proponent also committed to re-opening access to some preferred hunting grounds located northwest of the project area. Access to these areas had been lost due to past and ongoing mining activity and road closures. To re-open this access, the proponent would upgrade an existing road and maintain it twice annually for the duration of the Project. The road would allow users to bypass the DSO4 area (also referred to as the Kivivic and Goodwood mining sector) and allow unimpeded access to lands which were previously used by Indigenous people. The proponent would not assume ownership of this road, but would commit to maintain it regularly for the life of the Project.

At the end of the Project, the proponent would, subject to regulatory requirements, grant ultimate decision-making power with respect to the final disposition of roads, bridges and other access infrastructure to the Indigenous communities, provided that such decision making power does not raise liability issues for the proponent.

Additional measures proposed by the proponent to mitigate or compensate for the Project's effects on the current use of lands and resources for traditional purposes, including for the loss of access, impacts to caribou hunting, and effects on other traditional activities, include:

- announce blasting events on the radio and notify band councils 48 hours prior to blasting events;
- maintain and enforce a speed limit of 70 km/hour on the main mining road between the Schefferville landfill and the Project, and of 50 km/hour between the Schefferville landfill and the Town of Schefferville. Speed limits would be enforced by the proponent and the Sûreté du Quebec;
- maximize the presence of Indigenous personnel for all security shifts to facilitate communication with local land users. Work with local communities to hold a security course for their members, so that there can be additional Indigenous personnel at the security post;
- contribute to a compensation fund for traditional activities (in addition to the compensation fund associated with the bypass road). This fund would be specified in each Impact Benefit Agreement between the Indigenous groups and the proponent. The Indigenous leadership would determine how the funds are allocated and used. This fund would contribute to alleviating the financial burden for families who count on subsistence harvesting for its economic and nutritive value, in an area where store-bought food is expensive;

- implement a progressive rehabilitation program throughout the life of the Project, including developing and implementing a waste management plan, conducting revegetation/ecological restoration studies and geotechnical slope stability studies, and implementing in-pit mining methods; and
- rehabilitate and close the site, following the operation phase, which would include decommissioning and removing equipment and infrastructure, filling the remaining sections of the open-pit with water, and stabilizing and revegetating the overburden stockpiles and waste rock piles.

The proponent committed to the following monitoring and follow-up activities related to the current use of lands and resources for traditional purposes:

- monitor traffic speed along the main mine road between the Town of Schefferville and the Project;
- report caribou and other wildlife sightings (including collisions with wildlife) to the Health, Safety, and Environment Committee;
- contribute financially to the Caribou Ungava program, a research program which studies caribou, the effects of mining and other activities on the George River Herd, and on other factors that may play a role in the herd's decline or in changes to migratory patterns. Within the framework of the program, researchers would engage Indigenous communities in research initiatives by considering their views, their traditional knowledge, and by involving them in the research activities held on their traditional territories; and
- hold meetings of the Health, Safety, and Environment Committee four times per year. The Health, Safety, and Environment Committee would provide a forum for the proponent and Indigenous communities to discuss and address any project issues or concerns related to health, safety or environmental matters. Members of the committee would collaborate with the proponent to oversee and assess the effectiveness of mitigation measures and to adapt mining activities if necessary to minimize the effects on traditional activities.

Predicted Residual Effects

Taking into consideration the implementation of mitigation measures, the proponent concluded that potential adverse effects on the current use of lands and resources for traditional purposes would occur continually or intermittently through all phases of the Project, would be low to moderate in magnitude, would be completely or partially reversible, and would not be significant.

7.4.2 *Views expressed*

Federal and Provincial Authorities

The Province of Newfoundland and Labrador provided information on the George River Caribou Herd, including population dynamics, historic and current ranges, factors contributing to the current decline, and potential effects of mining activity. The Province of Newfoundland and Labrador confirmed that the project area has been used as a migration route in the past, but has not been used more recently. It confirmed that land-use activities, including mining, can be a contributing factor to population declines if not managed properly; however, it also noted that, in the past, the George River Caribou Herd underwent a period of population recovery at the same time as ongoing mining activity in the Schefferville area, and that caribou did not appear to actively avoid the area during this period. Nonetheless, the Province of Newfoundland and Labrador stated that, although the Project is unlikely to contribute significantly to the herd's current population decline or its potential short-term

recovery, the effects of the Project may become more significant if the herd recovers and the Project contributes as a barrier to the expansion of the herd's range. Additional information provided by the Province of Newfoundland and Labrador regarding caribou is outlined in Section 6.2.

Indigenous Groups

Community members from Matimekush-Lac John relayed that the land use study area, as defined in the proponent's *Study on Land and Resource Use by the Innu and Naskapi*,[11] is continuously used, particularly by younger community members who do not have as much time to travel to hunting grounds located further than one days travel from the community. The project area is used primarily to access the hunting, fishing, and trapping areas located in the Howells River valley, which is part of the study area. However, opportunistic activities do occur in the project area with many species hunted, fished, and gathered. The Nation Innu Matimekush-Lac John stated that the study area will continue to be used extensively.

With regard to access, the Nation Innu Matimekush-Lac John stated that the feeling of free access to its traditional territory is critical to achieving viable coexistence of mine development and traditional activities such as hunting, fishing, and gathering, which are still commonly practiced in the project area and beyond. The use of access routes has been restricted or severely limited by mining activity, and the Nation Innu Matimekush-Lac John initially expressed concern that the Project could contribute to the restrictions to access. Furthermore, land users must frequently share available access routes with large mining trucks and have expressed concern regarding safety.

The Nation Innu Matimekush-Lac John believes that the upgraded bypass road should help to resolve the potential access issues associated with the Project; however, the Nation requested that the upgrades be completed in consultation with Indigenous groups and that large mining trucks not share the bypass roads with Indigenous land users. It also requested that access be re-opened to hunting grounds to the northwest of the Project beyond the DSO4 area (also referred to as the Kivivic and Goodwood mining sectors), which had been lost due to mining activity. The proponent committed to re-opening access to these areas, as discussed above. Furthermore, the Nation Innu Matimekush-Lac John requested that issues related to accessing traditional territories and the management of the various access roads used by community members be discussed on a regular basis with the community to ensure effective and timely resolution of these issues.

The Nation Innu Matimekush-Lac John expressed that the Health, Safety, and Environment Committee is not an effective mechanism as a communication channel between the proponent and Indigenous groups. The Nation Innu Matimekush-Lac John stated that meetings of the Health, Safety, and Environment Committee occur semi-annually as opposed to the three or four times a year stated by the proponent. Two meetings per year seem insufficient to monitor and take timely action on health, safety, and environmental files. It was suggested that creating one or more working groups to discuss certain issues more intensively should be considered.

[11] The study area in this case refers to the study area defined in the proponent's *Study on Land and Resources Use by the Innu and Naskapi* and is a 113 square kilometre area and includes the project area, a series of lakes surrounding the project area (e.g. Morley Lake, Goodream Lake, Triangle Lake, Burnetta Lake, Rosemary Lake, and a section of the Howells River shoreline), numerous other land use sites identified in the area, and the trails and access routes used.

The Nation Innu Matimekush-Lac John reported that dust from mining activities is a source of extreme concern for the community and affects their ability to conduct traditional activities and their day-to-day life. Specifically, it relayed that during dust events or dry times in the summer months when hunting grounds are accessed, community members are physically covered in dust. This experience is a deterrent to accessing hunting areas and also bringing youth, as local community members believe children are particularly vulnerable to the effects from dust. Land users also noted that dispersal of dust in the air can affect berries and medicinal plants and change wildlife species' appearance, such as causing Willow Ptarmigan or White Partridge to turn orange. The Nation Innu Matimekush-Lac John stated that the Health, Safety, and Environment Committee had been discussing alternative solutions for improving dust control around the site since 2013, and the proponent has been studying the use of various types of dust suppressants. The Nation Innu Matimekush-Lac John requested that the results of these efforts and an explanation of how they would be incorporated into the dust management plan be shared with the community. Furthermore, the Nation Innu Matimekush-Lac John suggested that traffic generated by the mine should be analyzed in greater depth (e.g. frequency of trips, percentage of workers vs. users, type of vehicles, etc.) and integrated into the monitoring program. It also asked that a wash bay be established in the Town of Schefferville so that mining trucks may be cleaned before entering town.

As outlined in Section 6.2, the Naskapi Nation of Kawawachikamach expressed concern related to the Project's potential contribution to the ongoing decline and future recovery of the George River Caribou Herd. Similar to the Innu, caribou hunting is an integral part of the Naskapi's culture and is an important part of its diet. The Naskapi Nation of Kawawachikamach also noted that if cultural knowledge and traditional practices related to caribou hunting are not passed on they could be lost forever. The Naskapi Nation of Kawawachikamach reiterated the extent of its Aboriginal and treaty rights, especially when it comes to caribou hunting and that it must be borne in mind that a return of the George River Caribou is a possibility, and best efforts must actively be implemented for such possibility.

Although caribou hunting is not currently taking place, the Nation Innu Matimekush-Lac John noted that sites within the land use study area have been used for caribou hunting, and specifically noted the importance of Kauteitnat as a location for such activities. Harvesters from the Nation Innu Matimekush-Lac John and the Naskapi Nation of Kawawachikamach are confident that the George River Caribou Herd will recover and return to the Schefferville area.

Since the decline of the George River Caribou Herd and the associated hunting ban, the Naskapi have hunted moose in greater numbers, and expressed a desire for the proponent to also consider the Project's impacts on moose and ensure proper measures are in place to reduce or eliminate the Project's potential effects on moose and moose hunting.

The Naskapi also emphasized the need to monitor and test assumptions put forward by the proponent. In particular, a request was made to monitor potential effects from blasting on fish and fish eggs. The Naskapi relayed that fish are an important species to the community and while there are other areas to fish, members are still concerned about potential project effects on proximal watercourses.

The Naskapi clarified that while there are impact benefit agreements in place for other projects operated by Tata Steel Minerals Canada Ltd., there is not currently an agreement in place for the Howse project. The Naskapi

indicated that it expects to sign an agreement with Howse, which would include compensation for loss of access and effects to traditional activities.

7.4.3 Agency analysis and conclusion

Analysis of the Effects

Access

The Agency is of the view that, after taking into consideration the implementation of mitigation measures, the Project would likely have a minor adverse effect on access to fishing, hunting, gathering, and trapping areas that are currently accessed by travelling through the project area (e.g. Kauteitnat, Pinette Lake, Rosemary Lake, and the Howells River Valley).

In reaching this conclusion, the Agency has taken into account the proponent's commitments to:

- upgrade and maintain a bypass road, which would allow continued access to these areas; and
- upgrade and maintain a road which would bypass the DSO4 area (also referred to as the Kivivic and Goodwood mining sector) and restore access to preferred hunting grounds to the northwest of the Project.

The Agency notes that while the bypass road adds travel distance (16 km) and potentially increases travel time (15–30 minutes), it would eliminate the need to pass through a security gate or travel with an escort, and the financial costs associated with the additional distance would be compensated by the proponent. Overall, while the additional travel time may discourage some use of these areas and may result in a change to preferred areas, the Agency is of the view that effects of the Project on access would not limit users' ability to conduct current use activities in the same or in a similar manner as they do now and at similar levels.

Therefore, the Agency believes that these effects would be low in magnitude, local in extent, and would occur continuously for the life of the Project.

Subsistence and Traditional Caribou Hunting

Consideration of "current use" under CEAA 2012 includes uses that may have ceased due to external factors, but may be reasonably expected to resume once conditions change. The ability for Indigenous people to hunt caribou from the George River Herd would be one such use.

The Agency acknowledges the importance of caribou hunting to local Indigenous populations, both for subsistence purposes and as an important component of their cultures. Caribou hunting was identified as a means to transfer traditional knowledge, language, and other valued aspects of cultures and traditions between generations.

The proponent concluded there would not likely be any residual effects of the Project on traditional and subsistence caribou hunting. The proponent also stated that the George River Caribou Herd is unlikely to return to the area naturally under current conditions; however, the Agency notes that Indigenous groups are of the view that caribou will recover and return to previously occupied areas. The Agency is aware of the Province of Newfoundland and Labrador's ongoing efforts to promote recovery of the herd and notes its advice that

recovery of the George River Caribou Herd may result in caribou expanding their current range and re-occupying portions of the land use study area; recent monitoring (i.e. 2010–2015) identified areas of caribou densities approximately 80 kilometres east of the Project. The Agency also acknowledges the Province of Newfoundland and Labrador's comment that, during the previous recovery period of the George River Caribou Herd, caribou migration routes included areas around Schefferville and any related contribution of mining activities to potential limitations of herd recovery were not realized.

The Agency considers that if the herd does recover and/or re-occupy its former range and migration routes, the Project could have some influence on caribou movements and local distribution. The Agency has been advised that the habitat in the project area and the potential zone of influence is not considered unique wintering or calving caribou habitat, and is more or less ubiquitous in the larger area historically occupied by the herd. Although the project area and zone of influence have acted and could still act as a migration corridor between wintering or calving habitat, it is not a unique or limiting migration route.

The Agency considered the factors outlined above, as well as the mitigation measures proposed by the proponent, such as monitoring caribou and working with the Province of Newfoundland and Labrador to implement adaptive management measures, such as halting blasting and hauling activities, as required, in considering the potential effects of the Project on caribou populations and their recovery. In the current context, given the timing of the Project and the limited geographic range and low population of the herd, the Agency is of the view that the Project is unlikely to contribute to the decline of the herd, and that the Project's effects on caribou populations and their recovery would be minimal in magnitude. However, the Agency considers it necessary that the proponent work with the Province of Newfoundland and Labrador to develop adaptive management measures and additional mitigation if caribou appear to be recovering and/or re-occupying the land use study area.

The Agency notes the proponent's view that, if caribou hunting in and around the project area is affected, Indigenous people can hunt caribou in other areas within a 30 kilometre radius. However, the Agency also notes that preferred hunting areas are an important element of current use and that not being able to access those areas represents an impact to that use. If the George River Caribou Herd does recover and/or re-occupy portions of its former range and migration routes, the Project may affect the availability of caribou in areas where Indigenous peoples hunt for caribou. In particular, Kauteitnat and surrounding areas, which were identified as preferred caribou hunting areas, fall within the potential zone of influence around the Project which caribou may avoid. The Agency acknowledges that the Project would occur in an area that has been and continues to be heavily disturbed by mining activity, but notes that the Project would be the closest existing or proposed development to Kauteitnat, and would contribute to the expansion of the cumulative mining footprint in the region. If caribou return to the land use study area, they may avoid these preferred hunting areas, and this would in turn result in an effect on subsistence and traditional caribou hunting. The cumulative effects of the Project on the current use of lands and resources for traditional purposes are discussed in Section 8.4.

The Agency acknowledges the proponent's commitment to re-open access to alternative preferred hunting areas beyond the DSO4 area (also known as the Kivivic and Goodwood mining sector) and notes that Indigenous groups have specifically requested this measure be implemented. The Agency also acknowledges the

proponent's commitment to establish a compensation fund to support traditional activities, including caribou hunting, as well as the proponent's commitment to rehabilitate the mine site.

The Agency concludes that the magnitude of the Project's effects on subsistence and traditional caribou hunting would be moderate in magnitude because access to preferred hunting locations may be modified or limited. These effects would occur continuously over the life of the Project, but would be reversible.

Other Subsistence and Traditional Activities

Although the Project may cause residual effects to fish and migratory birds (Sections 7.1 and 7.2), the Agency is of the view that these effects would not sufficiently affect local populations to impact upon Indigenous peoples' ability to harvest these resources. Other harvested species, such as beaver, other furbearers, and non-migratory birds, may be affected; but the Agency believes these effects would also be localized and would not sufficiently influence regional populations to impact Indigenous peoples' ability to harvest these resources. In addition, the Agency is of the view that any potential human health risk due to consumption or exposure of country foods would be low (Section 7.5) and would not limit Indigenous peoples' ability to safely harvest or consume country foods.

The Agency acknowledges that the presence of the Project may result in decreased use of nearby areas and sensory disturbance to those using these areas. As well, the Agency finds that, if the appearance of certain species is affected, such as discolouration of fish or birds caused by the deposition of iron ore dust particles, community members may avoid harvesting and consuming fish and birds from these nearby areas.

Dust was a key concern identified throughout the federal environmental assessment process. Many aspects related to dust are considered in Section 7.5 (Health and Socio-economic Conditions of Indigenous Peoples); however, the presence of dust also affects the quality of experience by land users, and may decrease confidence in the quality of the harvested resource. The Agency acknowledges that the proponent conservatively modelled nuisance dust, up to 5 kilometres from the project area. Many preferred sites for hunting, fishing, trapping and gathering are located within this area, including Triangle Lake, Rosemary Lake, and Kauteitnat. Based on the proponent's conclusion that dust may affect land use, and based on Indigenous groups concern regarding the effects of dust on resource quality, the environment, and human health, the Agency finds that there may be a negative change in the practice of traditional activities at preferred sites within this area. The implementation of mitigation measures as outlined in Sections 6.1 (Atmospheric Environment) and 7.5 (Health and Socio-economic Conditions of Indigenous Peoples) would serve to reduce effects but cannot eliminate them completely.

The proponent would be required to develop a follow-up program in consultation with Indigenous groups to verify the nature and extent of the effects on current use of lands and resources for traditional purposes, to determine the effectiveness of mitigation measures, and to ensure ongoing and adaptive management of any unanticipated outcomes. Such a program could include monitoring traditional use, including collecting information and capture rates on fishing, hunting, and gathering effort at preferred areas and implementing adaptive management measures if negative changes in use and experience are reported.

In addition, the Agency is of the view that the requirement for the proponent to develop and implement a communications plan with Indigenous groups would be an effective tool to facilitate information sharing and provide a feedback mechanism for Indigenous groups on key issues related to the Project. The Agency

acknowledges that Indigenous groups have not been satisfied with the existing Health, Safety, and Environment Committee, but is of the view that this committee may be adapted and improved and could be used as a means to implement the communications plan.

The Agency believes that effects on other subsistence and traditional activities would be moderate in magnitude, local in extent, would occur continuously for the life of the Project, and would be reversible.

Key Mitigation Measures

The Agency considered the mitigation measures proposed by the proponent, expert advice from federal and provincial authorities, and comments received from Indigenous groups in identifying the following key mitigation measures:

- Ensure that the bypass road, which would allow traditional land users to circumvent the project area and access areas used for traditional activities (e.g. Pinette Lake, Kauteitnat, and the Howells River valley), is maintained for the entire life of the Project and is provided without a requirement to wait at a security gate for a security escort.
- Ensure that the bypass road not be used for transportation of ore or any other project activities besides routine upgrading and maintenance of the bypass road itself.
- Upgrade, prior to the start of construction, and maintain, until the end of decommissioning, a route for users to bypass the DSO4 area (also referred to as the Kivivic and Goodwood mining sector) and restore access to preferred hunting grounds northwest of the Project. The chosen route shall not be used for transportation of ore or any other project activities, besides routine upgrading and maintenance of the bypass road itself.
- Prohibit employees and contractors associated with the Project from fishing and hunting within the project area, unless an employee or a contractor is provided access by the proponent for traditional purposes or for exercising Aboriginal rights, to the extent that such access is safe.
- Monitor caribou presence and movement around the Project, including gathering available information on the presence and movement of satellite-collared caribou and monitoring caribou within a 20 kilometre radius of the Project. If caribou are observed within a 20 kilometre radius of the Project, notify the Newfoundland and Labrador Department of Fisheries and Land Resources and undertake any recommended actions.
- Develop and implement a communications plan with Indigenous groups to ensure Indigenous groups are regularly kept informed and can provide feedback on key issues related to the Project. The communication plan shall include procedures and practices for sharing information on the following:
    - Project activities requiring notification and the timing of these notifications. For blasting, the Proponent shall advertise blasting schedules via local radio stations and directly to Indigenous groups at a minimum 48 hours prior to each blasting event;
    - follow-up activities and monitoring results for traffic; air quality, including dust and dust deposition; country foods; water quality and quantity; fish and fish habitat; accidents, malfunctions and unplanned events; traditional use activities; bird and nest surveys; and caribou movement; and

- temporary and permanent restrictions on access to traditional territories, including the location and timing of restrictions and the availability of alternate routes, and the timing of maintenance activities for the bypass roads.

- The communications plan shall also include ways for Indigenous groups to provide feedback to the proponent about adverse environmental effects caused by the Project and procedures and practices for the Proponent to document and respond in a timely manner to the feedback received and demonstrate how issues have been addressed.
- The proponent can consider, in consultation with Indigenous groups, adapting the existing Health, Safety and Environment Committee as a means to implement the communications plan.

Need for and Requirements of Follow-up

The Agency considered the follow-up and monitoring programs proposed by the proponent, expert advice from federal and provincial authorities, and comments received from Indigenous groups in identifying the following programs necessary to verify the predictions of effects to the current use of lands and resources for traditional purposes and the effectiveness of mitigation measures:

- Develop, in consultation with Indigenous groups, a follow-up program to verify the accuracy of the environmental assessment as it pertains to the effects of the Project on current use of lands and resources for traditional purposes and to determine the effectiveness of the mitigation measures outlined above. The Proponent shall implement the follow-up program in consultation with Indigenous groups.
- Develop and implement, in consultation with Indigenous groups and the Province of Newfoundland and Labrador, a follow-up program to verify the accuracy of the environmental assessment as it pertains to the effects of the Project on caribou. As part of the follow-up program, the Proponent shall monitor caribou movement and develop and implement modified or additional mitigation measures if required and particularly if the range of the George River Caribou Herd appears to be expanding and caribou are re-occupying areas around the Project.

Conclusion

The Agency concludes that the Project is not likely to result in significant adverse environmental effects on the current use of lands and resources for traditional purposes by Indigenous peoples after taking into account the implementation of the key mitigation measures identified by the Agency.

7.5 Health and Socio-economic Conditions of Indigenous Peoples

In examining the potential effects of the Project on the health and socio-economic conditions of Indigenous peoples, the Agency considered potential effects on both physiological health and quantifiable socio-economic conditions, as well as potential effects on broader individual and community health and wellness. Specifically, the Agency focused its assessment on changes to the environment caused by the Project that could affect:

- human health through inhalation of potential contaminants of concern and ingestion of contaminants found in or on water, country foods, and soils, while also considering broader individual and community well-being; and
- socio-economic conditions from reduced ability or desire to harvest traditional foods.

Potential effects of the Project on the health and socio-economic conditions of Indigenous peoples could be caused by changes to components of the environment, such as the atmospheric environment or caribou populations, or through effects on other valued components, such as the current use of lands and resources for traditional purposes. These environmental changes and effects to valued components are discussed in other sections of this report, but are closely interrelated to the potential effects on the health and socio-economic conditions of Indigenous peoples.

7.5.1 *Proponent's assessment of environmental effects*

Predicted Effects

Effects to Indigenous Peoples' Health

The proponent considered the following environmental components which could act as exposure pathways to human health risks: water quality, soil quality, air quality, and food quality.

The proponent predicted that human health risk from water consumption or dermal contact with surface water (e.g. from swimming in nearby lakes) would be negligible because there would be no anticipated effect on surface water quality from the Project. Effluent from the settling pond would meet regulatory discharge standards through all phases of the Project.

The proponent predicted that human health risk from incidental soil ingestion would be negligible or low based on modelled uptake of soil influenced by dust deposition.

The proponent predicted that human health risk from consumption of country foods would be negligible or low. This risk assessment was based on modelled uptake of substances from air deposition and root uptake of soil contaminants into food items such as berries, medicinal tea, and small game. Baseline exposure of toddlers to contaminants of potential concern through consumption of Labrador tea was determined to be of a slightly elevated risk; however, the proponent has indicated that Labrador tea is not customarily consumed by toddlers.

The proponent found that the country food harvested in the study area does not represent a significant source of food intake when considering the general diet of Indigenous peoples in the region.

The proponent also evaluated potential effects on the quality of fish and caribou tissue as a result of contamination from various substances, including mercury. The proponent stated that the quality of fish tissue, and the potential associated health risk from its consumption, would change only negligibly or not at all because the Project's water discharges would be managed to comply with water quality standards. The proponent also stated that there would be limited interaction between the Project and caribou that could affect the quality of their tissue.

As discussed is Section 6.1, the Project would emit a variety of atmospheric contaminants that may result in exceedances of air quality criteria. The proponent explained that air quality modelling results indicated that organic air contaminants (e.g. acrolein, benzene, formaldehyde, acetaldehyde, and 1,3-butadiene) would not exceed air quality criteria; therefore, these contaminants were not brought forward to the human health risk analysis. Short duration exceedances of particulate matter less than 2.5 microns, nitrogen dioxide, and sulfur dioxide were also not considered in the human health risk analysis because of the rarity of such events. The

proponent stated that the assumptions, inputs, and thresholds used in the air quality model were intentionally selected to represent worst case conditions; therefore, any predicted exceedances are likely not completely reflective of actual future conditions. In addition, the sensitive receptors where these exceedances could occur are camps with periodic usage, meaning the presence of a human receptor during an exceedance is unlikely.

The proponent assessed the potential inhalation of fugitive dust in its human health risk assessment, and predicted that it would have a low risk to human health. The proponent modelled dust and analyzed associated risks from inhalation using Health Canada's guidance for contaminants for which a specific inhalation toxicity effect has been documented (arsenic, beryllium, and chromium). As described in Section 6.1, airborne particulate matter at sensitive receptors beyond the property line are predicted to exceed air quality assessment criteria; however, the proponent indicated that these exceedances would be for short durations and would occur very infrequently (less than 1 percent of the time). The proponent predicted that these exceedances would generally be at locations in close proximity to the project footprint boundary. The proponent predicted that effects to human health caused by project emissions would be low and committed to monitoring air quality, including fugitive dust, which would allow it to confirm its inhalation risk estimates and apply additional mitigation if required.

Effects to Socio-economic Conditions of Indigenous Peoples

The proponent's assessment of effects on the socio-economic conditions of Indigenous peoples was done through the analysis of the Project's effects on a number of related valued components, such as land use practices, human health, health conditions and services, infrastructure and services, and the economy (including employment, businesses and labour force). The proponent predicted that the Project could result in changes to these components of the socio-economic environment, which then could result in effects on the general socio-economic conditions of Indigenous peoples.

As discussed in Section 7.4, the proponent predicted that the Project could result in effects to the current use of lands and resources for traditional purposes. These impacts may in turn result in effects to the socio-economic conditions of Indigenous peoples. For example, land users may practice traditional activities less frequently and may become more reliant on store-bought food, resulting in potential socio-economic impacts.

The proponent concluded that the Project would have negligible effects to Indigenous outfitting businesses or other commercial fishing, hunting, trapping, and gathering activities in the area. The proponent stated that most of these businesses have ceased activities or have maintained only marginal activities because most wildlife species are relatively rare in the area, and because of the ban on caribou hunting in response to the caribou population decline.

Proposed Mitigation Measures, Monitoring, and Follow-up

The proponent explained that mitigation measures that would address project effects on the atmospheric environment, caribou, fish and fish habitat, migratory birds, and the current use of land and resources for traditional purposes would, to some extent, mitigate the effects on the health and socio-economic conditions of Indigenous peoples.

The proponent also proposed the following measures to specifically address effects of the Project on the socio-economic conditions of Indigenous peoples:

- contribute to a compensation fund (or funds) to assist with extra costs incurred by harvesters to access other areas for subsistence and traditional activities and to compensate for the additional travel time and cost associated with the bypass road; and
- contribute any usable wood to local communities following vegetation clearing.

The proponent also committed to the following programs and additional activities related to country foods and the health of Indigenous land users. The proponent would:

- conduct a country food sampling program 2 years after commencement of the operation phase and subsequently every 5 years for the duration of operations. Fish, waterfowl, berries, and mammals (when possible) would be monitored;
- monitor fish tissue for mercury under the *Metal Mining Effluent Regulations*, as per the proponent's ongoing work at other projects;
- report the results of the country food sampling program to the Health, Safety, and Environment Committee and to Health Canada;
- conduct a new human health risk assessment should increases of contaminants in country foods be detected and implement a targeted action plan (results-dependent);
- update assumptions associated with direct (inhalation) and indirect (food quality, dust, soil) exposure pathways from its air quality monitoring, including total suspended matter and associated chemistry;
- establish a complaint procedure through the Health, Safety, and Environment Committee if concerns are expressed about effects of the Project on country food quality and/or taste; and
- provide all reports available to the Agency and to the public via a shared drive used by the Health, Safety, and Environmental Committee, and discuss reports at the Health, Safety, and Environment Committee's meetings.

The proponent considered implementing a more broadly applied community health monitoring program, but concluded that widespread health status monitoring would not be productive because there is a general resistance by stakeholders to share such information with private industry and the determinants of local health status are multifaceted and do not provide a sound basis for a cause–effect analysis or for focused corrective actions. The proponent believes that such a program would be better facilitated by government.

Predicted Residual Effects

The proponent predicted that all exposure pathways examined would result in negligible risk to human health as a result of the Project, and determined that the residual effects of the Project on human health would be of low magnitude and not significant. The proponent predicted the Project's negative effects on the socio-economic conditions of Indigenous peoples would be low in magnitude and would also not be significant.

7.5.2 *Views expressed*

Federal Authorities

Health Canada required additional information and clarification from the proponent to evaluate the proponent's human health risk assessment.

Health Canada asked how the existing health of the local population was considered within the proponent's analysis. The proponent explained that requests were made to procure local health status information from various local Indigenous groups and local governments, but that this information was not available.

Health Canada raised several issues regarding the proponent's methodology to assess health risks from chromium exposure. Health Canada noted that the assumptions used in the assessment were not universally acceptable, but it was ultimately satisfied that adverse health effects from exposure to chromium are unlikely in this specific scenario.

Health Canada questioned the proponent's risk thresholds used for the human health risk assessment, and asked the proponent to justify the acceptability of using risk thresholds that exceed Health Canada's proposed acceptable hazard quotients. Health Canada also suggested specific hazard quotients and standards the proponent should use in its risk assessment. The proponent provided an overview and explanation for the methods and thresholds used in its human health risk assessment, including additional details concerning the thresholds, predicted hazard quotients, and incremental lifetime cancer risks. Despite disagreeing with the hazard quotient categories presented by the proponent, Health Canada was ultimately satisfied that the substances evaluated in the human health risk assessment are not likely to result in adverse health effects to local people. In addition, Health Canada acknowledged the proponent's commitment to undertake a country foods monitoring program so that any changes in contaminant concentrations in country foods could be identified and the human health risk assessment updated.

Health Canada asked the proponent to justify its screening-out of substances in the human health risk assessment based on a predicted change of less than 10% from baseline conditions. It noted that any substances that are predicted to exceed applicable guideline values (irrespective of whether they are predicted to increase by more than 10%) should be carried forward in the human health risk assessment for further assessment. The proponent explained that, in its view, the reported percentage change in risk estimates of less than 10% relative to baseline are negligible for a number of reasons, including the conservative modelling of the exposure point scenarios that were used and the conservative assumptions included in the baseline risk estimate. It also noted that for cases where an increase in risk was observed, the increment relative to baseline was actually less than 1 percent. Health Canada accepted that, for this Project in particular, the increment relative to baseline was indeed less than 1 percent and increased health risks are not expected based on this predicted change, but noted that this process for screening-out substances should not be standard practice.

Health Canada indicated that new air quality standards for sulfur dioxide have been recently released and standards for nitrogen oxides are imminent but not yet released. It recommended that the proponent take into account any updated air quality standards, as appropriate, throughout the life of the Project. The proponent agreed to consider new air quality standards as they become available.

Following the review process, Health Canada indicated it was satisfied with the proponent's responses and ultimately the assessment and mitigation measures proposed.

Indigenous Groups

The Naskapi Nation of Kawawachikamach and the Nation Innu Matimekush-Lac John stated that the Project could increase costs and effort required to carry out traditional practices, mainly through increases to travel

time and fuel requirements. The Project could also result in indirect effects on health and socio-economic conditions, primarily through effects to traditional and subsistence food sources, including caribou, which is an extremely important resource but is already at critically low levels. These effects could, in turn, influence consumption of store-bought foods, which are often more costly and less nutritious. The proponent's commitment to contribute to a compensation fund would alleviate some of the costs associated with the increased travel time; however, the Indigenous groups noted that it remains unclear if this measure would be effective in encouraging Indigenous users to continue using the lands, or if the Project would contribute to a decrease in subsistence activities in the area and potentially an increase in reliance on store-bought food.

Several of the Indigenous groups, including the Nation Innu Matimekush-Lac John, the Innu Nation, and the Naskapi Nation of Kawawachikamach, raised concerns about the potential effects on human health and socio-economic conditions as a result of the Project's impacts on air quality, and, in particular, the Project's contribution to ongoing issues with dust and dust events. These groups voiced concerns regarding respiratory health impacts from dust emissions and contamination of country foods from dust deposition onto plants, soil, and water. The Innu of Matimekush-Lac John have noticed an increase in respiratory health problems in the community in recent years, and attribute this increase in part to mining activity and associated dust generation, to which the Project would contribute. In addition to direct health effects, dust generation and dust events greatly affect the day-to-day life of the local communities.

The Innu of Matimekush-Lac John stated that the proactive management of dust, including the dust generated by and associated with vehicles traveling to and from the mining site, is a key factor in the social acceptability of the Project. The proponent did incorporate these comments into its assessment and provided clarification with respect to its analysis of impacts to air quality and the potential risks to human health. Based on recommendations from the Innu of Matimekush-Lac John, the proponent committed to providing financial, technical, and administrative support to construct a wash bay at the entrance to the Town of Schefferville for vehicles travelling from the mine site, which would help to prevent dust migrating from their vehicles, as well as those of other operators. The proponent would also wash vehicles before leaving the mine site and would spray roads during dry periods. The proponent also committed to monitor air quality, including dust and dust fall, at strategic locations including in the Town of Schefferville (refer to Section 6.1).

Indigenous groups also reinforced the need for effective monitoring and communication strategies to ensure traditional foods are fit for consumption and to reduce the perception of risk, otherwise users would avoid using these resources. Specifically, Indigenous groups requested that the proponent identify any locations where resources may be at risk of contamination and areas where it is safe to harvest resources as a measure to attempt to reassure land users. As described above, the proponent would conduct a country food sampling program, communicate results to the local communities, and re-assess risks to human health as necessary on an ongoing basis. Groups also asked whether or not the proponent would undertake any human-health related monitoring. The proponent indicated that such a program would not be feasible.

The Nation Innu Matimekush-Lac John noted that, despite the prediction that there would be no adverse health effects, traditional harvesting activities in proximity to the Project may be affected because of fear of contamination and that harvesting within the reclaimed area following decommissioning is unlikely. Similarly, the Naskapi Nation of Kawawachikamch and the Nation Innu Matimekush-Lac John both noted that there is

already an existing perception of contamination of resources and existing obstacles to the practice of traditional activities. The Project would contribute to this ongoing decline of subsistence resource use and traditional activities, which results in a greater reliance on less nutritious and more expensive store-bought foods.

7.5.3 *Agency analysis and conclusion*

Analysis of Effects

Indigenous Peoples Health

The Agency agrees with the proponent that potential residual effects to Indigenous peoples' health from project-related changes to the environment, including changes to country foods, water, and soils, would likely be low and notes that Health Canada was satisfied with the proponent's assessment and conclusions. Proposed mitigation measures, including measures to control dust emissions and the use of sedimentation ponds to treat surface water, are appropriate and would reduce the risks to human health through pathways associated with consumption of or contact with country foods, water, or soils. The Agency also recognizes the proponent's commitment to conduct a country food sampling program and to communicate the results to local Indigenous groups. The Agency is of the view that this program is important not only to verify the prediction that the Project's effects on country foods would not pose a risk to human health, but also to reassure local land users that resources remain safe for consumption and to reduce the potential that these users may avoid previously used areas.

The Agency agrees that human health risk from inhalation of dust or airborne contaminants originating from the Project itself would also likely be low. While air quality exceedances are predicted by the proponent, particularly in relation to nitrogen dioxide and particulate matter, the Agency understands that the frequency of exceedances would be low (less than 1 percent of the time) and that the modelled predictions used worst-case scenarios and can be considered conservative (i.e. the models likely overestimated the short-term effects on air quality). Taking into account the mitigation measures committed to by the proponent, such as preventing and managing blast-generated nitrogen oxides, and given that the exceedances would only occur under specific conditions, the Agency agrees that they would occur very infrequently, if at all. Furthermore, the Agency agrees with the proponent's reasoning that, due to the low probability of a short-lived air exceedance combined with the infrequent presence of a sensitive receptor (i.e. camps with non-regular usage), the resulting risk to human health from exposure to airborne contaminants would be low. The Agency is also of the view that the use of mobile monitoring equipment would enable adaptive management measures to be applied if required.

The Agency acknowledges that issues related to air quality are of utmost concern to local Indigenous groups given the existing conditions and issues associated with dust generation and dust events during dry periods. Although the acute or chronic toxic effects of the dust and dust events may be of relatively low concern for physiological health, the dust and dust events have an indisputably serious effect on the well-being and day-to-day life of individuals in the region. This high level of concern is reflected in the views expressed by local Indigenous residents. In particular, the Agency acknowledges Indigenous groups' view that the proactive management of dust generated by vehicles is a key factor in achieving social acceptability of the Project.

When considering the Project in isolation, the Agency believes that the proponent has appropriately addressed the issues and concerns raised, and that, with the implementation of mitigation measures, the Project's

contribution to dust events and air quality problems, and in turn the effects on the health and socio-economic conditions of Indigenous peoples, would be relatively small. However, the Agency acknowledges that, given the existing conditions, the Project's contribution to dust generation and dust events, however small, would contribute to cumulative effects and is of concern to the Indigenous groups in the areas. Cumulative effects of the Project on the health and socio-economic conditions of Indigenous peoples are discussed in Section 8.4.

The Agency believes that the proposed mitigation measures related to effects on the atmospheric environment would reduce, but would not completely eliminate, the Project's potential related effects on the health and socio-economic conditions of Indigenous peoples. The Agency is of the view that the requirement to spray the Howse haul road to control the release of dust and to develop and implement a dust management strategy to control dust generated by vehicles would help to prevent dust generation and related issues. The dust management strategy could include measures committed to by the proponent, such as spraying the road between the Project and Schefferville and washing vehicles prior to leaving the DSO project complex and before entering the Town of Schefferville. Additional measures, including measures to reduce and manage dust generation during blasting and ore processing, measures to reduce and manage blast-generated nitrogen dioxide, and measures to reduce traffic between the Project and Schefferville, would also reduce the effects of the Project on the atmospheric environment. The proposed monitoring and follow-up measures related to the atmospheric environment would help to confirm the proponent's assessment and verify the effectiveness of mitigation measures relevant to this potential pathway to human health risk.

Socio-economic Conditions of Indigenous Peoples

The Agency acknowledges that the Project could result in effects to the current use of resources for traditional purposes by Indigenous peoples (Section 7.4), which can, in turn, have a wide range of effects on the socio-economic conditions of local Indigenous communities. Indigenous peoples have historically and still rely on and value traditional harvesting and other activities for subsistence and cultural reasons, and any decrease in Indigenous peoples ability or desire to partake in these activities as a result the Project could result in subsequent socio-economic effects to Indigenous peoples.

However, the Agency believes that, when considering the Project in isolation, the effects on the socio-economic conditions of Indigenous peoples from project-related changes to the environment, including changes to the cost and effort associated with subsistence use activities, would be relatively localized and that the magnitude of effects would be low. Proposed mitigation measures and monitoring and follow-up activities, including those described below but also in other sections of this report, would address the Project's potential negative effects on the socio-economic conditions of Indigenous peoples.

Key Mitigation Measures

The Agency considered the mitigation measures proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the following key mitigation measures as necessary to mitigate adverse effects on the health and socio-economic conditions of Indigenous peoples:

- Implement the following measures to mitigate dust generation and effects from fugitive dust:
    - Designing waste rock piles and overburden stockpiles using a qualified individual and in consultation with relevant authorities and Indigenous groups.

- Implement progressive rehabilitation to progressively return any physically disturbed areas to a state as close to the baseline as possible, as soon after the disturbance as practical, including:
  - re-vegetate areas disturbed during construction, but which are no longer required for operation; and
  - establish the waste rock piles' and overburden stockpiles' final surface area early and stabilize, compact, and re-vegetate waste rock piles and overburden stockpiles, or portions of the piles, that are no longer being actively used or managed.
- Spray dust suppressant along the Howse haul road during all phases of the Project to control the release of dust.
- Transport ore on the Howse haul road in covered trucks.
- Implement dust-control measures at the conveyor transfer and drop points when the conveyor is active, in the drum scrubber when ore is mixed, and at the crude ore recovery tunnel, the secondary crusher and the dryer during ore processing activities.
- Fill borehole necks with clean crushed rock to eliminate dust and gas emissions during blasting.
- Limit the number of vehicles travelling between Schefferville and the project area by using shuttle buses to transport workers and other merchandise to and from the project area instead of smaller vehicles.
- Develop, in consultation with Indigenous groups and relevant authorities, and implement a dust management strategy to control dust generated by vehicles associated with the Project. This dust management strategy could include the proponent's commitment to wash vehicles prior to leaving the DSO project complex and before entering the Town of Schefferville and to spray dust suppressants along the road between the Project and the Town of Schefferville.

- Develop and implement a communications plan with Indigenous groups to ensure they are regularly kept informed and can provide feedback on key issues related to the Project (see Section 7.4 for additional details).

The Agency notes that key mitigation measures described in the Fish and Fish Habitat, Migratory Birds, Physical and Cultural Heritage, and Current Use of Lands and Resources for Traditional Purposes by Indigenous Peoples sections of this report would also contribute, to varying degrees, to reduce the effects of the Project on the health and socio-economic conditions of Indigenous peoples.

Need for and Requirements of Follow-up

The Agency considered the follow-up and monitoring programs proposed by the proponent, expert advice from federal authorities, and comments received from Indigenous groups in identifying the following programs necessary to verify the predictions of effects to the health and socio-economic conditions of Indigenous peoples and the effectiveness of mitigation measures:

- Monitor air quality at sensitive receptors by using mobile monitoring equipment and by using standard reference and site-specific sampling methods.
- Monitor dust and dustfall at strategic locations around the project area and DSO project complex, as well as within the Town of Schefferville and Kawawachikamach as appropriate, using a dust tracking system and mobile monitoring equipment. Analyze dust to determine metal content and concentration of other potential contaminants of concern. If monitoring indicates that effects are greater than

predicted, or if dust generation from the Project is linked to a decrease in traditional activities, implement modified or additional mitigation measures, including:
    - adaptation of blast designs;
    - enclosing the Howse mini-plant inside a ventilated building;
    - increasing the frequency of road spraying;
    - spraying waste rock piles and overburden stockpiles during dry periods; and
    - constructing wind-breaks.
- Conduct a country food sampling program 2 years after the commencement of the operations phase and continue sampling at a frequency and duration determined in consultation with Indigenous groups and relevant authorities. Monitor fish, waterfowl, berries, and mammals. Sampling would be conducted in areas where Indigenous groups harvest country foods which may be affected by the Project, and would include monitoring for heavy metals such as mercury, and other potential contaminants of concern.

Results from the monitoring activities, including air quality monitoring, dust deposition monitoring and dust composition analysis, country foods monitoring, fish tissue monitoring, and complaints received would be shared with the Indigenous groups through the communications plan to be prepared by the proponent.

Conclusion

The Agency concludes that the Project is not likely to result in significant adverse environmental effects on the health and socio-economic conditions of Indigenous peoples after taking into account the implementation of the key mitigation measures identified by the Agency.

7.6 Transboundary Environment

Greenhouse gases are atmospheric gases that absorb and re-emit infrared radiation resulting in the warming of the lower levels of the atmosphere. These gases disperse at the global scale and are, for the purposes of CEAA 2012, considered transboundary environmental effects.

The main greenhouse gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), ozone (O_3), hydrofluorocarbons, and perfluorocarbons. Greenhouse gas estimates are usually reported in units of tonnes of CO_2 equivalent[12] (CO_2e) per year. Projects that emit over 50 000 tonnes of CO_2e per year are required to report their emissions to Environment and Climate Change Canada.

7.6.1 *Proponent's assessment of environmental effects*

Predicted Effects

The proponent submitted a combined calculation of greenhouse gas emissions for the construction, operation, decommissioning and reclamation phases because emissions from construction, decommissioning, and

[12] Emissions of CO_2, methane, and nitrous oxide are calculated by multiplying the emission rate of each substance by its global warming potential relative to CO_2e.

reclamation (mainly from road traffic) would be negligible relative to operations. The proponent predicted greenhouse gas emissions during operation from the following sources owned or controlled by the company:

- Howse mini-plant: diesel generator and burners;
- haul trucks; and
- mining equipment.

The proponent calculated that the Project would emit 67 000 tonnes of CO_2e per year, which the proponent calculated to be about 0.7% of Newfoundland and Labrador's total CO_2 emissions in 2013, based on a greenhouse gas emissions value of 9 560 000 tonnes of CO_2e per year.

Proposed Mitigation Measures, Monitoring, and Follow-up

The proponent identified the Howse mini-plant and the haul trucks as the largest contributors to greenhouse gas emissions for the Project and committed to the following standard mitigation measures to reduce greenhouse gas emissions:

- limit the use of dryers in the mini-plant to reduce fuel consumption;
- construct the mini-plant near the rail loop to reduce the ore transport distance, which would reduce vehicle emissions; and
- minimize vehicle idling.

The Proponent indicated that in addition to these measures, it intends to develop a greenhouse gas action plan once the Howse mini-plant is fully operational and further measures can be based on accurate emission data. As a result, analysis of greenhouse gas emissions at this time are based on total emissions with the application of the standard mitigation measures noted above.

7.6.2 *Views expressed*

Federal and Provincial Authorities

Environment and Climate Change Canada had no issues in regards to the proponent's analysis of greenhouse gas emissions.

The Newfoundland Department of Municipal Affairs and Environment (Pollution Prevention Division) requested that the proponent validate its emission calculations for the diesel generators with updated data and amend the effects assessment, as required. The proponent indicated that emissions data for the diesel generators were taken directly from the manufacturer's data sheet and no changes to the calculations and assessment were required.

Indigenous Groups

The Innu Nation and the Naskapi Nation of Kawawachikamach expressed some concern regarding the Project's greenhouse gas emissions and its contribution to climate change.

The Innu Nation requested the proponent identify and describe specific measures that would be taken as part of the action plan to reduce greenhouse gases, including standard practices. The Innu Nation also asked the proponent to indicate by how much it anticipated emissions of greenhouse gases to be lowered as a result of

implementing the mitigation measures. The proponent identified some standard greenhouse gas mitigation strategies that have been described above. It also explained that it considered a wind power program to supplement diesel power at the Howse site, but later determined the length of the Project would not justify the associated costs of a wind power program.

The Naskapi Nation of Kawawachikamach expressed interest in reviewing the proponent's proposed action plan for the reduction of greenhouse gases, which would be developed following the acquisition of data on emissions from the Project once it is fully operational.

7.6.3 *Agency analysis and conclusion*

Analysis of the Effects

As calculated by the proponent, and in discussion with the Province of Newfoundland and Labrador, the Project's total maximum emissions of 67 000 tonnes of CO_2e emission per year during operation would be equivalent to approximately 0.65 percent of Newfoundland and Labrador's and 0.009 percent of Canada's total greenhouse gas emissions, based on 2015 emissions levels recorded by Environment and Climate Change Canada.

The Agency notes that as the Project would produce more than 50 000 tonnes CO_2e per year the proponent would have to report its emissions annually to Environment and Climate Change Canada.

The Agency notes that the primary contribution to the direct greenhouse gas emissions is from operation of the mini-plant (87%) and that further mitigation measures would be identified once the mini-plant is operational. Without taking any reductions from those measures into account, the Agency considers the residual volume of greenhouse gas emissions predicted from the Project after implementation of the standard mitigation measures proposed by the proponent to be low in magnitude in comparison with provincial and national emission levels. The greenhouse gas emissions would be global in nature, long term, and are considered irreversible due to the persistence of CO_2 in the atmosphere.

Key Mitigation Measures

The Agency considered the mitigation measures proposed by the proponent, advice from expert federal and provincial authorities, and comments received from Indigenous groups and did not identify any key mitigation measures as necessary in relation to greenhouse gas emissions.

Need for and Requirements of Follow-up

The Agency considered the follow-up and monitoring programs proposed by the proponent, advice from expert federal and provincial authorities, and comments received from Indigenous groups and determined that additional programs are not required to verify the predictions of effects to the transboundary environment or the effectiveness of mitigation measures. The Agency notes that the proponent would be required to monitor its greenhouse gas emissions and report on these annually to Environment and Climate Change Canada.

Conclusion

Taking into account the implementation of the mitigation measures described above, the Agency is of the view that the Project would not result in significant adverse environmental effects as a result of greenhouse gas emissions.

8 Other Effects Considered

8.1 Effects of Accidents and Malfunctions

Accidents and malfunctions associated with the proposed project activities have the potential to occur throughout all project phases and could have adverse impacts on the Project and the surrounding environment. Therefore, pursuant to paragraph 19(1)(a) of CEAA 2012, the EA took into account the environmental effects of accidents and malfunctions that may occur in connection with the Project.

8.1.1 *Proponent's assessment of environmental effects*

Accident and Malfunction Scenarios

The proponent considered six credible accident and malfunction scenarios: fuel and chemical spills, road accidents, fire, explosions, water management plan failure, and slope failures. The proponent assessed each potential scenario according to severity of effects and likelihood of occurrence and assigned an associated risk ranking for the potential event.

Spills

Diesel fuel was identified by the proponent as the most widely used product on site and thus most likely immiscible material (i.e. liquids that do not fully dissolve in water) to be spilled. The proponent stated that miscible materials (i.e. liquids that fully dissolve in water) would only be present in small quantities – mainly sewage water and glycol. Sewage would be treated at the workers' camp, with no more than 5,000 litres of sewage contained at the mine site and no more than 100 litres of glycol present at the mine site at any given time. The proponent prepared an Environmental Response Plan which includes procedures for immiscible spills on land, waterbodies, snow and ice, and wetlands.

The proponent stated that the resultant environmental effects from any leakage of explosive ingredients would be low because the leakage would be physically contained and the material recovered, and if necessary, transported to a blast site and detonated. Any contaminated soil at the spill site would be excavated and disposed of in a secure area.

The proponent concluded that the consequence of a spill of any material could be high; however, the likelihood of occurrence would be low and the likelihood of it reaching a waterbody or wetland is negligible because the Project was designed with no watercourse crossings and few roads located within 30 metres of a waterbody or wetland. The proponent noted that for one section of road between the overburden stockpile and the waste rock pile, a spill could impact upon a wetland and potentially reach Pinette Lake, which could have an effect on fish and fish habitat in that waterbody.

Road Accidents

The proponent considered fuel spills (addressed above) and wildlife mortality as the primary environmental effects that could result from a road accident. The proponent predicted that collisions with wildlife would have a low likelihood of affecting wildlife populations because collisions would affect only a few individuals of a species. In particular, the proponent pointed out that caribou are not present in the project area and normally avoid populated areas, and heavy traffic would likely be a deterrent to birds.

Fire

The proponent assessed the potential for fires at the mine site, and evaluated two scenarios: a fire in the mining complex or a fire related to a spill. Forest fires are considered in Section 8.2 (Effect of the Environment on the Project).

The proponent stated that the likelihood of a fire taking place in the mining complex would be moderate, but the environmental consequence of such a fire would be negligible because the mining complex is to be located in the middle of a large clearing, with little surrounding vegetation or wildlife. Traffic accidents could result in fuel spills which could also be a source of fire. However, the likelihood of such a spill was considered low and the consequence, if one was to occur, would be moderate because the only potential effects would be to air quality.

The proponent stated it would have firefighting equipment, including extinguishers, pumps, and hoses, at various work areas where fuel or flammable material is regularly handled. Trained onsite personnel would respond to fires using the onsite equipment, and regulatory and emergency response authorities would be notified as needed.

Explosions

The proponent identified two accident scenarios related to the use of explosives: an unplanned explosion and an accidental leakage of one of the explosive chemicals (discussed above).

The proponent stated that any unplanned explosion would be confined to the pit area because the two explosive ingredients used (ammonium nitrate and fuel) are only mixed together prior to placement in the blast hole within the pit. The proponent concluded that the likelihood for such an accident is low. Furthermore, the proponent stated that even if such an unplanned explosion occurred it would not result in any effects beyond what would be expected for a planned explosion, because only the planned amount of explosives would be brought together at the mine site. The proponent determined that a worst-case scenario would be the extremely unlikely detonation of a full explosives magazine; however, it concluded that because explosive magazines are stored in an isolated area away from other facilities, there would be minimal environmental effects from such an explosion.

In the event of any explosives-related issues or events, an immediate evacuation of the surrounding area would occur and the responsible emergency coordinator would deploy an emergency response team to put in place an emergency response plan.

Water Management Failure

The proponent identified two water management failure scenarios: a sedimentation pond failure or a ditch failure. The failure of the sedimentation pond would result in the release of untreated water containing suspended solids and possibly nitrogen compounds to receiving waters, leading to potential adverse effects on fish and fish habitat. The proponent acknowledged a high consequence if the sedimentation pond failed but concluded that the likelihood of a failure is negligible because the pond would be constructed to withstand extreme environmental conditions and inspected at least twice a year.

The proponent also identified the potential for ditch failure due to blockage by ice or by fallen rock and soil materials, which could impact upon fish and fish habitat if the diverted mine drainage reached a waterbody.

However, the proponent concluded that the likelihood of a ditch failure is low due to regular inspection (at least twice a year) and maintenance of ditches and their distance from most water bodies. It also concluded that the consequence of a ditch failure would likely be low because large volumes of water would not likely reach waterbodies and the effects would be reversible after the discharge ceased.

The proponent explained that emergency response measures for a water management failure would be the same as for spills (discussed above).

Slope Failures

The proponent stated that slope failure can result from general instability or as a result of the freeze–thaw cycle. Failure of the waste rock pile or overburden stockpile slopes into one of the drainage ditches could result in the diversion of mine drainage from the ditch into nearby waters before it reaches the sedimentation pond, resulting in suspended solids reaching a watercourse and affecting water quality and fish habitat. The proponent predicted that the only waterbody located close enough to a peripheral ditch that could be impacted by a slope failure is Goodream Creek.

The proponent stated that the consequence of such an event would be high due to the effect on fish and fish habitat from contamination of total suspended solids, but considered the likelihood of such an event occurring as negligible due to the design of the slopes and the ongoing inspection of their integrity.

If a potential slope failure zone is identified, the proponent would implement an action plan to address the situation, which would involve measures to ensure personnel safety and to attempt to re-stabilize the slope. If the slope cannot be re-stabilized, a small localized blast may be used to initiate a controlled failure.

Proposed Mitigation Measures, Monitoring, and Follow-up

Mitigation measures would focus on reducing the likelihood of accidents and malfunctions and reducing risks and consequences should an accident or malfunction occur. The proponent identified a suite of accident and spill prevention design measures, such as engineering controls, emergency detection and shut-down systems, spill containment barriers, and fire prevention and protection measures. The proponent would implement the following measures to address the accident or malfunction scenarios discussed above:

- limit vehicle speed to 50 km/hour or less;
- design roads to follow Newfoundland and Labrador standard practice;
- maintain all roads regularly;
- limit access to roads in the project area;
- monitor traffic and maintain data on traffic activity;
- conduct all blasting activities, including the transportation, storage, and use of explosives in accordance with the *Federal Explosives Act*;
- ensure a licensed blasting contractor conducts all blasting activities;
- use an oil/water separator to remove hydrocarbons, if present in pit water or site runoff water, before they enter the sedimentation ponds;
- inspect sedimentation ponds and ditches regularly (at least twice per year) and ensure integrity is maintained;

- inspect waste rock piles (at least twice a year);
- conduct daily surveys of the pit walls to ensure they match the design of the pit and to identify any potential failure zones;
- monitor fish to ensure they are not negatively affected if a spill reaches Pinnette Lake; and
- protect ditches against erosion with a layer of riprap.

Additional details and procedures developed by the proponent to avoid, respond to, and mitigate accidents and malfunctions are provided in the environmental emergency response plan and environmental protection plan.

A complete list of mitigation measures committed to by the proponent is provided in Appendix C.

Predicted Residual Effects

The proponent concluded that following the application of safeguards and contingencies, no accidents or malfunctions would be of unacceptable risk. Further, the proponent stated that the likelihood of any of the aforementioned accidents or malfunctions occurring is low; therefore, there is a low likelihood that a significant adverse environmental effect would occur as a result.

8.1.2 *Views expressed*

Indigenous Groups

The Nation Innu of Matimekush-Lac John requested that an analysis be conducted on the potential risks and consequences that are associated with the decision to have only one explosive storage facility for all mining operations in the area. It also requested more information on road traffic that would occur in the project area and requested that traffic monitoring be integrated into the follow-up program. The proponent provided additional information regarding the storage and use of explosives and committed to maintaining traffic data.

The Nation Innu of Matimekush-Lac John was concerned about the proponent's response to accidents and spills, pointing to a recent release by the same proponent of red water into Morley Lake. The Nation Innu of Matimekush-Lac John stated that they were not sufficiently notified or engaged regarding the incident, which it stated suggests a lack of environmental monitoring and response.

The Naskapi Nation of Kawawachikamach requested information on how hydrocarbons from machinery and equipment spills would be prevented from entering the environment. The proponent committed to using an oil/water separator to remove hydrocarbons from the water before it enters the sedimentation pond and also noted that the water quality would be monitored regularly at the sedimentation pond discharge point, including for hydrocarbons.

8.1.3 *Agency analysis and conclusion*

The Agency is satisfied with the proponent's characterization of accidents and malfunctions and with the proposed approach to risk management. The Agency understands that the proponent would take reasonable measures to minimize the probability of accidents and malfunctions. The Agency is of the view that most accidents and malfunctions, particularly those that could potentially result in serious environmental effects, are unlikely to occur and, with proper preparation, response, and mitigation measures, could be managed and dealt with sufficiently. However, the Agency notes that the proponent's Emergency Response Plan does not include

specific response plans for slope, sedimentation pond, or ditch failures. The Emergency Response Plan should be updated, and these response scenarios need to be developed within the plan to ensure protection of the environment.

The Agency acknowledges that the likelihood of a spill reaching a waterbody or wetland is low because the project design includes no watercourse crossings, with the exception of wetland areas, and the locations where a spill is most likely to occur (i.e. along roadways or at equipment storage or re-fueling locations) are generally located at least 30 metres away from most water bodies. A notable exception is the location at which the Howse haul road would cross a wetland near the Two Ponds area. The Agency is concerned that a spill along the roadway between the overburden stockpile and waste rock pile, near the Two Ponds area, could affect nearby wetlands and potentially reach Pinette Lake. Since Pinette Lake is an important area for Indigenous groups, the Agency considers the effects could be significant from any spills in this area. The Agency notes that the proponent would construct safety berms and retention ditches along the roadway and would have procedures in place to respond to any spill, which would be found in the proponent's Environmental Response Plan.

The Agency disagrees with the proponent's conclusion that the consequence of a ditch failure would be low. The Agency notes the proponent provides a contradictory assessment in its analysis of the effects of a waste rock or overburden pile slope failure into a ditch, where it states that the same general accident scenario (i.e. slope failure blocking a section of the ditch) would result in the release of untreated runoff water into the environment, with high environmental consequences. The Agency believes that failure of the sedimentation pond, ditches, or of a slope failure into a ditch could have high consequences to water quality, fish, and fish habitat. However, the Agency acknowledges that the proponent committed to regular inspections and maintenance of the sedimentation ponds and ditches. The Agency considers these activities, in concert with the proponent's design measures, the emergency response approach (to be appropriately updated), clean-up and restoration actions, and monitoring activities, to be sufficient in managing the risk of sedimentation pond failure or slope failure.

If either the sedimentation pond or a ditch were to fail, the Agency recognizes that effluent discharges to the environment from mining operations in Newfoundland and Labrador are regulated by the Newfoundland and Labrador Ministry of Environment pursuant to the *Water Resources Act*. Any changes to effluent flow or quality beyond effluent permit requirements (i.e. discharge quality) cannot exceed Newfoundland and Labrador *Environmental Control Water and Sewage Regulations* and may require the implementation of additional corrective measures in consultation with the Newfoundland and Labrador Ministry of the Environment and Fisheries and Oceans Canada if fish and fish habitat are affected.

The Agency has considered the mitigation measures proposed by the proponent and comments received from Indigenous groups in identifying the following key mitigation measures to mitigate potential environmental effects from accidents and malfunctions:

- Prior to construction and in consultation with Indigenous groups and relevant authorities, develop an emergency response plan. The plan shall include response plans for slope failures, sedimentation pond failures, ditch failures, and destabilization of waste rock piles and overburden stockpiles and rock slides, in addition to all other emergency scenarios identified in the EIS.

- Notify Indigenous groups and local-area stakeholders of any accidental event or malfunction which results in an environmental effect. This would include notifying Indigenous groups and local-area stakeholders of any release of effluent beyond permit requirements, malfunction of any of the safety berms or retention ditches, or any other accidental release of a potential substance of concern into the environment.

The Agency considers these regulatory mechanisms in concert with the proponent's design measures, emergency response approach, monitoring activities, and restoration actions to be adequate in managing the risk of unplanned effluent discharge and the corresponding local and short-term effects to the environment.

The Agency concludes that the Project is not likely to result in significant adverse environmental effects as a result of accidents and malfunctions, taking into account the implementation of the key mitigation measures identified by the Agency.

8.2 Effects of the Environment on the Project

Environmental factors that could potentially affect the Project include extreme weather events, forest fires, and long-term implications of climate change. These factors may damage project infrastructure and increase the potential for accidents and malfunctions (Section 8.1).

8.2.1 *Proponent's assessment of effects of the environment on the Project*

The proponent evaluated several environmental factors that could have an effect on the Project, including: high winds causing white-out conditions due to blowing snow, extreme precipitation and flooding events, forest fires, and climate change.

High Winds and White-Outs

The proponent stated that high winds are relatively frequent in the project area and may result in white-out or low-visibility conditions. Reduced visibility could increase the possibility of road accidents, which could result in a variety of environmental effects, such as spills or collisions with wildlife.

To address these issues, the proponent stated that wind conditions would be continuously monitored and appropriate action would be taken when required, including:

- limiting or stopping outdoor work;
- limiting or stopping heavy equipment operation; and
- issuing a no-travel notice.

Extreme Precipitation and Floods

The proponent noted that failure of the water management system, in particular the sedimentation ponds, could result in increased erosion of Goodream Creek and an increase in total suspended solid concentrations further downstream. However, the proponent stated that the sedimentation pond would be designed and constructed to withstand extreme conditions, including a 25-year return period flood, and would be inspected twice per year over the lifetime of the Project. It also noted that emergency spillways associated with the

sedimentation ponds, as well as the drainage network, would be constructed to safely pass an inflow design flood with a 100-year return period (based on Canadian Dam Association guidelines).

Forest Fires

The proponent stated that forest fires have the potential to affect project infrastructure and operations and noted that forest fire activity may become more common in the future with climate change. The proponent indicated that a forest fire that reaches the project area could potentially destroy infrastructure and affect mining operations, although it considered this scenario unlikely given the existing landscape of low-growing plants and surrounding wetlands. The proponent concluded that the more likely scenario is a forest fire in surrounding areas that could reduce visibility and affect project activities and increase the potential for traffic collisions.

The proponent committed to contacting the appropriate authorities if a forest fire is observed and take action as appropriate, including assisting the authorities with available resources and ensuring safety of mine personnel.

Climate Change

The proponent stated that climate change may lead to increased temperatures and precipitation in Labrador, which could in turn affect the Project. The proponent based its analysis on a report commissioned by the Newfoundland and Labrador government detailing climate projections over the next 50 years for the province. Climate models suggest that most of Labrador would experience an increase in annual winter temperature of 3 or 4 degrees Celsius and an increase in annual summer temperature of 1 degree Celsius.

Warmer temperatures during spring and fall may shorten the winter season by one to two weeks on average, which could result in earlier vegetation growth and delay trout spawning later into the fall. The proponent concluded that the warming temperature would be more pronounced inland and could potentially lead the George River Caribou Herd to move their calving grounds further inland from the coast. Although climate change could lead to drastic changes for wildlife in Labrador, the proponent stated that higher temperatures are not expected to have any effect on the Project.

The proponent stated that warmer temperatures could also lead to melting of permafrost and the destabilization of waste rock piles and overburden stockpiles. To minimize or eliminate the melting of permafrost and stabilize waste piles and overburden stockpiles, the proponent committed to preparing the base of these piles during the winter months so that the base layer would freeze and further insulate permafrost layers. The proponent also committed to removing overburden only in the winter months to reduce the potential for any permafrost to thaw. If the presence of permafrost is confirmed at the waste piles or overburden stockpiles, the proponent would install inclinometers to monitor the stability of these features. If any thawing permafrost is observed below the waste rock pile or overburden stockpile, the proponent committed to erecting a retaining wall around the pile to prevent rock slides.

An increase in precipitation during the summer months, including an increase in extreme precipitation events (more than 10 mm), could increase the frequency of flooding during the summer months. The proponent used data from a typical wet year scenario in its water balance model to simulate higher precipitation rates. The proponent concluded that an increase in precipitation would lead to an increase in flow rates from the sedimentation ponds. However, the proponent concluded that the higher flow rates predicted from June

through September would still be much lower than the May flow rates measured during an average rainfall year. The proponent concluded that an increase in precipitation from climate change would not affect the Project because the sedimentation ponds would be designed to handle higher volume rainfall events.

8.2.2 *Views expressed*

Federal Authorities

Environment and Climate Change Canada reviewed the proponent's analysis and consideration of extreme weather events, and sought assurance that the proponent had sufficiently considered events such as 100-year return floods and extremely dry or wet years in its water balance model and in the design of its water management infrastructure. The proponent confirmed that these were considered and incorporated in its water balance models and redesign of its water management infrastructure. Environment and Climate Change Canada was satisfied with the proponent's response.

Natural Resources Canada requested that the proponent provide additional information on the design parameters for roads, waste rock piles, overburden stockpiles, and other project infrastructure that could be built on permafrost. In addition, it requested that the proponent describe the monitoring and mitigation measures that would be implemented to identify and address any issues that resulted from changes in the permafrost. The proponent confirmed that road construction would follow standard industry practices. It also committed to regularly surveying control points along the mine roads to determine if any subsidence has occurred, and taking corrective actions to fix any road failures.

8.2.3 *Agency analysis and conclusion*

The Agency is of the view that the proponent has adequately designed the Project to account for effects of the environment on the Project. The Agency is of the view that the project design and mitigation measures proposed by the proponent would avoid or reduce potential effects:

- Design and construct diversion ditches for a 100-year return period flood.
- Design and construct sedimentation ponds to withstand at least a 25-year return period flood.
- Prepare the base of the waste rock piles and overburden stockpiles during the winter months.
- Remove overburden only during winter months.
- Stabilize waste rock piles and overburden stockpiles with a retaining wall if any permafrost thawing is observed below these features.
- Install inclinometers to monitor the stability of these features, in areas of the waste rock piles or overburden stockpiles where permafrost is confirmed.
- Inspect sedimentation ponds twice a year.

The Agency is satisfied that the proponent has adequately considered the effects of the environment on the Project and that the proposed mitigation measures and follow-up activities are appropriate to account for the potential effects of the environment on the Project.

8.3 Effects of the Project on Species at Risk

Subsection 79(2) of the *Species at Risk Act* requires the Agency to identify if and how a project is likely to adversely affect wildlife species listed in Schedule 1 of the *Species at Risk Act* or associated critical habitat.

For the purposes of this assessment, the Agency defined species at risk to be those species listed in Schedule 1 of the *Species at Risk Act* or assessed as endangered, threatened or of special concern by the Committee on the Status of Endangered Wildlife in Canada. The Agency also gave consideration to species listed under Newfoundland and Labrador's *Endangered Species Act*, and that also could be potentially affected by the Project (Table 4).

The Agency focused its assessment of terrestrial species at risk on habitat loss, mortality, and sensory disturbances. Effects on bird species at risk are discussed in greater detail in Section 7.2 (Migratory Birds).

Table 4 Species at Risk Potentially Affected by the Project

Species	Observed in Regional or Local Study Area	Migratory Bird *Migratory Bird Convention Act, 1994*	Status		
			Newfoundland and Labrador *Endangered Species Act*	*Species at Risk Act*	Committee on the Status of Endangered Wildlife in Canada
Birds					
Harlequin Duck (*Histrionicus histrionicus*) Eastern Population	Yes	Yes	Vulnerable	Special concern, Schedule 1	Special Concern
Red-necked Phalarope (*Phalaropus lobatusl)*	Yes	Yes	-	-	Special Concern
Short-eared Owl (*Asio flammeus*)	Yes	No	Vulnerable	Special concern, Schedule 1	Special Concern
Bank Swallow (*Riparia riparia*)	Yes	Yes	-	Threatened, Schedule 1	Threatened
Rusty Blackbird (*Euphagus carolinus*)	Yes	No	Vulnerable	Special concern, Schedule 1	Special concern
Common Nighthawk (*Chordeiles minor*)	No	Yes	Threatened	Threatened, Schedule 1	Threatened
Olive-sided Flycatcher (*Contopus cooperi*)	No	Yes	Threatened	Threatened, Schedule 1	Threatened
Mammals					
Wolverine (*Gulo*	No	-	Endangered	Endangered,	-

Species	Observed in Regional or Local Study Area	Migratory Bird *Migratory Bird Convention Act, 1994*	Status		
			Newfoundland and Labrador *Endangered Species Act*	*Species at Risk Act*	Committee on the Status of Endangered Wildlife in Canada
gulo) Eastern Population				Schedule 1	
Little brown myotis (*Myotis lucifungus*)	Yes	-	-	Endangered, Schedule 1	Endangered

8.3.1 *Proponent's assessment*

Predicted Effects

The proponent described potential effects to species at risk from modification and loss of habitat, sensory disturbances (i.e. artificial light, noise, and vibration), and mortality. These effects may lead to a decline of habitat quality and area, decreased food sources, and changes in population size, behaviour, and movement resulting in displacement and mortality.

Little Brown Bat

The Project is located at the northern limit of the species' range, and the proponent stated that no Little Brown Myotis (commonly referred to as Little Brown Bat) were observed in the project area, although the proponent noted that unidentified bat calls were detected in the Howells River Valley area approximately 3 kilometres west of the Project. The Little Brown Bat is the only bat species known to live in Labrador; therefore, the probability that it was the recorded species detected in the baseline surveys is high. The proponent stated that the occurrence of the Little Brown Bat in Labrador is limited by the presence of appropriate habitat, which consists of mature forests with trees large enough to support bat colonies. The proponent concluded that there was no preferred habitat available in the project area, due to the lack of forests, but habitat is possibly available nearby in the Howells River Valley.

Given the likely absence of the species in the project area, the proponent concluded that no adverse effects from the Project are expected on the Little Brown Bat.

Wolverine

The proponent stated that although Wolverine could potentially be present in the region, none were identified during baseline wildlife studies and the most recent sightings of the species in the Schefferville region occurred in the 1950s. Therefore, wolverine are likely non-existent in the area, and the proponent concluded that the Project would have no impact on the species.

Birds

The proponent stated that the Bank Swallow, Red-necked Phalarope, Harlequin Duck, Rusty Blackbird, and Short-eared Owl were observed within the regional study area for avifauna (i.e. a 30 kilometre radius around the Project). Of these species, the Bank Swallow, Red-necked Phalarope, and Rusty Blackbird were observed within

the local study area (i.e. the watersheds within which the Project would occur). Neither the Rusty Blackbird nor the Short-eared Owl are protected under the *Migratory Bird Convention Act*, and the potential effects of the Project on these species are considered below. The other species are protected under the *Migratory Bird Convention Act*, and are considered in Section 7.2; however, much of the proponent's assessment and mitigation applies to both migratory and non-migratory bird species.

Short-eared Owls inhabit a variety of wide open spaces and their abundance is closely related to the presence of voles and can fluctuate greatly. The proponent reported sightings of Short-eared Owl in the regional study area; however, none were observed in the local study area. The proponent is of the view that they are unlikely to breed in the local study area due to the lack of suitable habitat. The proponent stated that it is unlikely that the Project would negatively impact upon this species.

The proponent observed Rusty Blackbird in both the regional study area and the local study area during the summer breeding period. This species reaches relatively high densities in the Schefferville region, and can be expected to breed in reasonably sized wetlands within the local study area. The Project represents a habitat loss for approximately 4.5 pairs based on a density evaluation per hectare of suitable habitat in the project area; however, these types of habitat are common locally and regionally and site restoration would have a positive effect on habitat recovery in the long term.

Plants

No flora species at risk were observed during the surveys of terrestrial ecosystems. An analysis of listed species revealed that no species at risk plant, lichen or moss are expected to be found in the vicinity of the Project.

Proposed Mitigation Measures, Monitoring, and Follow-up

Mitigation measures, monitoring, and follow-up proposed by the proponent for migratory birds are listed in Section 7.2 and also apply to bird species at risk. The proponent proposed the following additional mitigation measures related to terrestrial species at risk:

- conduct rare plant surveys before any work is carried out in undisturbed areas, and take protective measures, such as isolating the plant, if these species are encountered;
- avoid accessing caves or inactive mines, especially during winter months when these areas could act as bat hibernation sites; and
- use decontamination practices known to be effective in destroying spores of the fungus which cause white-nose syndrome if a cave or old mine needs to be accessed.

The proponent would also implement the following programs and activities relevant to terrestrial species at risk:

- conduct wildlife surveys every five years on all of Tata Steel Minerals Canada Ltd.'s properties; and
- report wildlife sightings (e.g. Wolverine) to the Health, Safety, and Environment Committee.

Predicted Residual Effects

The proponent concluded that no critical habitats for any species at risk would be disturbed by the Project and that the amount of habitat to be disturbed by the Project is small relative to the amount of available suitable habitat surrounding the project area. Therefore, the proponent predicted no residual effects to species at risk.

8.3.2 *Views expressed*

Federal and Provincial Authorities

The Little Brown Bat is not a provincially listed species in Newfoundland and Labrador and the Province of Newfoundland and Labrador did not express concerns with regard to the loss of habitat as it is believed there is sufficient suitable habitat in Labrador to maintain the species.

Views expressed by federal and provincial authorities for migratory bird species at risk are described in Section 7.2.

Indigenous Groups

The Innu Nation requested that further investigations on rare and listed plant species be performed by the proponent to ensure these species are not affected by the Project. The proponent reported that no provincially or federally listed plant species were found in the project area and no other plant surveys had been planned. However, the proponent committed to performing a plant screening before any work is carried out in an undisturbed area. It also stated that any rare plants discovered would be isolated and protective measures would be implemented.

8.3.3 *Agency analysis and conclusion*

The Agency considered information provided by the proponent, Indigenous groups, and government authorities in assessing the Project's potential impacts on species at risk in accordance with the requirements set out in section 79 of the *Species at Risk Act*.

The Agency agrees with the proponent that the presence of the Little Brown Bat and Wolverine are limited in the project area and that effects on these species are unlikely. The Agency also acknowledges the proponent's commitment to continue monitoring for these species, as appropriate, which would identify if effects could potentially occur and would allow for further protective measures to be implemented if necessary.

The Agency is of the view that breeding of Short-eared Owl near the project area is unlikely due to lack of suitable habitat, and that any effects on this species are unlikely. The Agency notes that breeding pairs of Rusty Blackbird could be affected by alteration of vegetation, wetlands and sensory disturbances; however, the Agency is confident that mitigation measures related to migratory birds, such as conducting clearing activities outside the breeding bird season when possible, taking measures to protect nests if clearing must be conducted, and implementing buffer zones around wetlands, would minimize the impacts to this species.

The Agency is satisfied with the proponent's assessment of effects on species at risk and considers the mitigation measures and monitoring programs are sufficient to avoid or lessen any potential effects.

8.4 Cumulative Environmental Effects

This section describes the cumulative environmental effects that are likely to result from the Project in combination with the environmental effects of other physical activities that have been or would be carried out.

The assessment of cumulative effects was based on the potential for the Project to result in residual environmental effects, and the potential for identified residual effects to interact temporally and spatially with past, present, and reasonably foreseeable projects and activities. Consequently, the Agency focused its assessment on two valued components: (1) current use of lands and resources for traditional purposes; and (2) the health and socio-economic conditions of Indigenous peoples.

In examining the cumulative effects on those valued components, the Agency also considered the following:

- level of concern expressed by Indigenous groups and government agencies;
- health, status, or condition of the valued component;
- whether cumulative effects are likely to occur;
- potential significance of cumulative environmental effects; and
- potential mitigation or follow-up.

8.4.1 *Approach and scope*

The proponent considered past, current, and future physical activities in its evaluation of cumulative effects (Table 5), including mining operations, railway lines, and hydroelectric dams. Spatial boundaries were based on the area over which cumulative environmental effects may occur.

Table 5 Summary of Past, Existing and Reasonably Foreseeable Physical Activities Identified by the Proponent

Physical Activity	Owner	Location	Description	Dates of Activity
Past Activities				
Iron Ore Company of Canada Legacy Mine	Iron Ore Company of Canada	Schefferville area	Iron ore mine; closed operation	1954–1982
James Mine	Labrador Iron Mines Ltd.	Schefferville area	Iron ore mine; suspended operation	2011–2014
Wabush Mine	Tacora Resources	Labrador West and Fermont area	Iron ore mine; suspended operation	1965–2014
Existing Projects				
DSO3	Tata Steel Minerals Canada Ltd.	Schefferville area	Iron ore mines and processing plant	2012–
DSO4	Tata Steel Minerals Canada Ltd.	Schefferville area	Iron ore mine near Schefferville	2017–
Menihek Generating Station	Nalcor Energy	Schefferville area	Hydroelectric dam	1954–
Tshiuetin Rail Line	Tshiuetin Rail Transportation Inc.	Schefferville to Emeril Junction	Rail line	1954–
Quebec North Shore and Labrador Rail Line	Quebec North Shore and Labrador Railway	Emeril Junction to Sept-Îles	Rail line	1954–
Humphrey, Sherwood Pond, and Luce	Iron Ore Company of Canada	Labrador West and Fermont area	Iron ore mines	1962–
Mont Wright	ArcellorMittal	Labrador West and Fermont area	Iron ore mine	1976–
Fire Lake	ArcellorMittal	Labrador West and Fermont area	Iron ore mine	2006–
Arnaud Railway	Arnaud Railway Company	Arnaud Junction to Pointe-Noire	Rail line	1965–
Pelletizing Plant	ArcelorMittal	Port-Cartier	Iron ore pelletizing plant	1977–
Smelter	Aluminerie Alouette	Sept-Îles	Aluminium smelter	1992–
Future Projects				
Block 103	ML Gold Corporation	Schefferville area	Iron ore mine; Ascend Capital signed Letter of Intent to purchase in April 2017	-
Schefferville Area Stage 2, 4, and 5	Labrador Iron Mines Ltd.	Schefferville area	Iron ore mine; currently under bankruptcy protection	-
Joyce Lake	Century Global Commodities Corporation	Schefferville area	Iron ore mine; in EA process	-

Physical Activity	Owner	Location	Description	Dates of Activity
Lac Otelnuk	Lac Otelnuk Mining	North of Schefferville area	Iron ore mine; feasibility study completed in 2015	-
Labrador Operations – Wabush 3 and 6	Iron Ore Company of Canada	Labrador West and Fermont area	Iron ore mine	2018 (estimated)
Lac Knife	Focus Graphite Inc.	Labrador West and Fermont area	Graphite mine	-
Kami	Alderon Iron Ore Corporation	Labrador West and Fermont area	Iron ore mine	-
Fire Lake North	Champion Iron Mine Ltd.	Labrador West and Fermont area	Iron ore mine	-
Roy's Knob	FerroQuartz Labrador Inc.	Labrador West and Fermont area	Quartzite mine	-
Julienne Lake	Altius Minerals/JL Alliance	Labrador West and Fermont area	Mining rights reserved for Provincial Crown	-
Arnaud Mining Project	Mine Arnaud Inc.	Sept-Îles	Apatite mine; construction to commence between 2016 and 2018	2018 (estimated)

8.4.2 *Potential cumulative effects on the current use of lands and resources for traditional purposes*

Proponent's assessment of cumulative environmental effects

The proponent considered cumulative effects on the current use of lands and resources for traditional purposes within a 30 kilometre radius (approximately 2827 square kilometres) of the Project (referred to as the cumulative effects study area) and over a time period from 1954 to 2024. The proponent also defined a "regional study area" for its cumulative effects assessment, which it loosely defined as an area which roughly follows the project area to Sept-Îles, Quebec, and includes three ones of populated areas: Schefferville, Labrador West, and Sept-Îles.

Access to Lands and Resources

The proponent stated that mining activities have already significantly modified the landscape in the Schefferville area and that land users currently rely on road networks built by former mine operators. The proponent anticipates that road networks in the cumulative effects study area will likely expand as new mining activities occur; and that the new access may create faster and safer routes for land users.

The proponent noted that harvesting activities are already limited in the cumulative effects study area, but that other, alternative harvesting areas can be found nearby. However, the proponent acknowledged that as the region further develops, access to alternative areas may also be reduced. Modifying available access routes may result in additional time required and financial costs for Indigenous people, which may deter them from pursing traditional activities. Furthermore, the proponent stated that changes in access to areas used for traditional and subsistence activities may result in the permanent loss of some site-specific traditional knowledge.

The proponent also noted that the Project would contribute to a cumulative effect on the ability of Indigenous people to undertake subsistence and traditional caribou hunting. The proponent estimated that, when considering all of the past, existing, and reasonably foreseeable future physical activities identified, approximately 50% of hunting areas in the cumulative effects study area may be affected.

The proponent determined that the magnitude of cumulative effects on traditional and subsistence caribou hunting would be low, because less than 5 percent of the Indigenous population in the regional study area would likely be affected; however, the cumulative effects would occur continuously and over a long period of time. The proponent concluded that the cumulative residual effects of the Project are expected to be non-significant and considering the current population status and geographic range of the George River Caribou Herd, cumulative residual effects to subsistence and traditional caribou hunting are unlikely to occur.

Subsistence and Traditional Activities

The proponent stated that subsistence and traditional activities are affected by the past and existing mining operations in the Schefferville area. During its consultation efforts, the proponent heard that land users fear that local resources and country foods are contaminated as a result of past and existing mining activity. Reduced confidence in the quality of resources may cause people to refrain from

subsistence and traditional activities in the cumulative effects study area. The proponent acknowledged that as mining projects in the area expand, the fear of consuming contaminated resources will increase. Further, the proponent acknowledged that reduced confidence in the quality of resources may affect the ability to transfer knowledge among generations. The proponent also noted that in response to dust and noise generated by mining activities, Indigenous land users have shifted their preferred land use areas towards Rosemary Lake.

Despite the proponent's statement that cumulative effects from mining activities would have long-term changes to subsistence and traditional activities, it concluded that the cumulative effects would be not significant. The proponent argued that the cumulative effects of the Project would only impact upon a small portion of the regional study area and only a small percentage of the population within the regional study area, and alternative areas to conduct subsistence and traditional activities would remain available.

Proposed Mitigation Measures, Monitoring, and Follow-up

The proponent maintains that the mitigation proposed for direct project effects on current land and resource use would also mitigate potential cumulative effects. In addition, measures proposed by the proponent that mitigate direct and cumulative effects on other valued components may also indirectly mitigate cumulative effects on the current use of lands and resources for traditional purposes. For example, mitigations outlined in Section 6.1 may reduce dust volumes so that land users have more confidence in the quality and safety of resources in the cumulative effects study area, and would be able to continue conducting traditional use activities.

Some of the measures identified by the proponent that would serve to mitigate cumulative effects on the current use of lands and resources include the proponent's commitment to:

- upgrade and maintain a bypass road which would allow users to circumvent the Project and the DSO project complex to access areas used for traditional activities (e.g. Kauteitnat, Pinette Lake, and the Howells River Valley);
- restore access to previously lost preferred hunting grounds to the northwest of the Project, beyond the DSO4 area;
- contribute to a compensation fund to support traditional activities and to help alleviate the financial burden for families who rely on subsistence harvesting for its economic and nutritive value; and
- contribute financially to the Caribou Ungava program, a research program which studies caribou, the effects of mining and other activities on the George River Herd, and on other factors that may play a role in the herd's decline or in changes to migratory patterns.

Predicted Residual Effects

Taking into consideration the implementation of mitigation measures, the proponent concluded that potential adverse cumulative effects on the current use of lands and resources for traditional purposes would occur both continually and intermittently through all phases of the Project, would be low in magnitude, would be completely or partially reversible, and would not be significant.

Views expressed

Indigenous Groups

With regard to access, the Nation Innu Matimekush-Lac John stated that the feeling of free access to its traditional territory is critical to achieving viable coexistence of mine development and traditional activities such as hunting, fishing, and gathering, which are still commonly practiced in the project area and beyond. The use of access routes has been restricted or severely limited by mining activity, and the Nation Innu Matimekush-Lac John initially expressed concern that the Project could contribute to the restrictions to access. Furthermore, land users must frequently share available access routes with large mining trucks and have expressed concern regarding safety.

The Nation Innu Matimekush-Lac John requested that access be re-opened to hunting grounds to the northwest of the Project beyond the DSO4 area (also referred to as the Kivivic and Goodwood mining sectors), which had been lost due to mining activity. The proponent committed to re-opening access to these areas. Furthermore, the Nation Innu Matimekush-Lac John requested that issues related to accessing traditional territories and the management of the various access roads used by community members be discussed on a regular basis with the community to ensure effective and timely resolution of these issues.

Agency analysis and conclusions

The Agency is of the view that the adverse residual effects of the Project on current use of lands and resources for traditional purposes (Section 7.4) could act in combination with past, existing, and reasonably foreseeable developments over spatial and temporal boundaries. The Project would cumulatively affect access to traditional territories and the practice of traditional activities within this area.

Access

The Agency is of the view that the Project would have a minor residual effect on access, related to the additional time and distance that would be required to access preferred harvesting areas and Kauteitnat.

Additionally, in relation to caribou hunting by Indigenous people, in particular, if the population size of the George River Caribou Herd were to recover and return to occupy its former range, including the project area, the Agency is of the view that the Project may contribute cumulatively to diminished access to caribou harvesting areas. The Agency considers that these effects could, in turn, impact upon knowledge transfer of traditional practices, language, and other aspects of the Indigenous peoples' cultures.

The Agency considers that the mitigation measures outlined for direct project effects would also mitigate cumulative effects related to access to traditional territories. In particular, in addition to measures which mitigate the Project's direct effects, the Agency notes that the proponent would upgrade and maintain a bypass road which would allow users to travel around the DSO4 area and restore access to preferred hunting grounds to the northwest of the Project. The Agency is of the view that this is an important measure to address the effects of the Project, both direct and cumulative, and

partially responds to the issue of past and ongoing erosion of access to lands; as well as offsetting the effects to access to other preferred areas (i.e. Kauteitnat, Pinette Lake, and Rosemary Lake areas) as a result of the Project.

The Agency is of the view that after taking into consideration the implementation of these mitigation measures, the Project would result in a small or negligible contribution to the adverse cumulative effects on access to fishing, hunting, gathering, and trapping areas in the cumulative effects study area.

Subsistence and Traditional Activities

The Agency understands that preferred areas to undertake subsistence and traditional activities in the cumulative effects study area have shifted in recent years because of the proximity of existing mining operations and because of changes to wildlife populations, particularly caribou. Previous mining activities have resulted in changes to the availability of resources (e.g. changes to habitat quality and wildlife migration patterns and behavior), the quality of resources (e.g. appearance or quality of harvested plants, wildlife, and fish), and the overall experience of harvesting resources (e.g. effects from dust or other disturbances associated with mining activities).

The Agency believes that the Project is likely to further contribute to effects on subsistence and traditional activities.

The Agency agrees with the proponent's assessment that the Project would not likely influence regional populations of wildlife, including caribou, fish or other resources that could in turn impact upon subsistence and traditional activities, nor would any potential health effects likely limit Indigenous peoples' ability to safely consume country foods. With regards to caribou specifically, the Agency is of the view that the mitigation measures outlined in Section 7.4 would sufficiently address the Project's potential direct effects and its contribution to cumulative effects on the health of the George River Caribou Herd and its potential recovery. However, modification or avoidance of traditional and subsistence practices in areas affected cumulatively by mining practices is likely to occur based on the overall desirability of harvesting and consuming country foods at these locations. Furthermore, the Agency acknowledges that losing the ability to practice traditional activities over a period of time can disrupt the transmission of culture and traditional practices among generations.

As mentioned above, the Agency is of the view that the requirement to provide continued access to areas that would otherwise be affected by the Project, as well as providing new access to areas formerly used for traditional and subsistence practices, would reduce the Project's contribution to potential cumulative effects on subsistence and traditional activities as it provides additional options for land users to conduct these activities. Measures to reduce dust generation and dust events, further described in below and in Section 7.5, would also reduce the Project's contribution to cumulative effects on subsistence and traditional activities.

Conclusion

The Agency concludes that the Project would not result in significant adverse cumulative effects on the current use of lands and resources for traditional purposes after taking into account the implementation of the key mitigation measures identified by the Agency in this Section and in Section 7.

8.4.3 *Potential cumulative effects on the health and socio-economic conditions of Indigenous peoples*

Proponent's assessment of cumulative environmental effects

The proponent considered the cumulative effects of the Project on human health and socio-economic conditions of Indigenous peoples. The proponent's assessment did not consider the reduced ability or desire to harvest traditional foods and conduct traditional activities, as it considered that there would be no residual impact from the Project. However, this aspect is considered in the Agency's analysis and conclusions.

Human Health

The proponent considered cumulative effects of the Project on human health within a 520 square kilometre area surrounding the Project, which is equivalent to the regional study area used for the proponent's assessment of effects, both cumulative and project specific, to air quality. The proponent conducted a cumulative human health risk analysis, using similar methodology as it used for the project-specific health risk analysis (Section 7.5), where it examined the exposure of receptors to contaminants via multiple potential pathways including, air, soil, water, and traditional foods. The proponent's consideration of cumulative risk to human health involved conducting a multi-media exposure and risk assessment based on baseline conditions plus the project-induced effects in combination with effects from other activities, principally the nearby DSO3 and DSO4 mining activities.

The cumulative effects assessment for air quality, and thus the cumulative effects assessment for human health, did not consider additional projects within a 100 kilometre radius of the Project because the air quality monitoring showed that the dominant source of particulate matter emissions, derived from low-elevation wind-blown sources, and the modelled air quality impacts would be limited to a distance of less than 5 kilometres from emission sources.

For the cumulative scenario of the human health risk assessment, all exposure pathways assessed by the proponent yielded negligible risk to human health.

Proposed Mitigation Measures, Monitoring, and Follow Up

The proponent committed to implementing a number of mitigation measures to reduce the impact of the Project on air quality (Section 6.1) including road watering and ensuring mine vehicles are washed before entering town. However, it also considered that these latter measures would apply beyond the Howse Project context to both the DSO3 and DSO4 projects. The proponent stated that it was able to implement these measures because both DSO3 and DSO4 are under Tata Steel Mineral Canada Ltd.'s control, which also wholly owns Howse Minerals Limited (the proponent).

The proponent committed to developing an air quality monitoring plan, which would include:

- establish monitoring stations at DSO3, DSO4, and the Town of Schefferville;
- measure air pollutants such as nitrogen dioxide, total particulate matter, particulate matter less than 10 microns, metals, and dustfall; and
- meet the provincial guidelines of both Newfoundland and Labrador and Quebec.

The proponent also committed to implementing adaptive management strategies if the following scenarios occurred: (1) air quality data frequently exceeded assessment criteria; (2) complaints are received from the nearby communities; or (3) employees report problems. In each case, the first step after an event would be to investigate and conduct targeted follow-up monitoring or evaluation to understand the cause and effect of the event, followed by corrective action.

Residual Effects and Proponent's Conclusions

The proponent concluded that the cumulative effects of the Project would yield negligible risk to human health, and therefore the cumulative effects on human health would not be significant.

Views expressed

Federal Authorities

Environment and Climate Change Canada requested information on the frequency and nature of dust events and asked how those events could be either prevented, limited, or mitigated. The proponent noted that higher frequencies of dust events tend to occur during peak activities on a site, particularly during construction and when road travel increases. As activity diminishes, the dust events attributed to those activities should also diminish. The proponent noted that peak activities at the DSO3 project finished in 2015, and that project's contribution to dust events has since diminished. However, the proponent indicated that once construction on the Project begins, activity in the area would increase again and dust events could also increase. The proponent predicts that the operation phase should have a decrease in dust event frequency as compared to the construction phase, as traffic during operations would be mainly restricted to the mine site.

Health Canada asked whether country foods would be monitored during project operations in the event that air quality parameters exceed applicable guideline values or concerns are raised about potential changes in the quality or taste of country foods. The Proponent committed to monitoring country foods, including fish, waterfowl, berries, and mammals, through a country food sampling program. It also committed to engaging with communities through the Health, Safety, and Environmental committee if concerns are raised regarding the quality or taste of country foods collected within the regional study area.

Indigenous Groups

The Nation Innu Matimekush-Lac John, Naskapi Nation of Kawawachikamach, and Innu Takuaikan Uashat mak Mani-Utenam had concerns with the cumulative effects of dust caused by both the historical and current mining activities in the regional study. The proponent stated that while the dust originates from multiple sources, it agreed to collaborate with the communities to develop better dust control in the Schefferville area. The proponent proposed to create a Steering Committee on air quality that would include the Town of Schefferville, local indigenous communities, and any other mining companies who become active in the area. However, the proponent indicated that measurable outcomes from such committee would require provincial and federal governments to invest in the local roads.

Agency analysis and conclusion

The Agency acknowledges the concerns of local Indigenous groups regarding the potential cumulative effects of the Project in combination with past, existing and foreseeable projects and activities, particularly regarding dust. There is concern that the adverse residual effects of the Project on the health and socio-economic conditions of Indigenous peoples (Section 7.5) could act in combination with these effects. Specifically, the Agency notes that the Project would occur in an area that has already been greatly affected by mining activity, impacting on the lives of the local Indigenous populations.

In response to these issues, the proponent has said it would extend the application of some of the proposed dust mitigation measures for the Project, presented in Section 7.5, beyond the boundaries of the current Project, potentially reducing the cumulative effects. For example, the Agency considers the mitigation measure to develop, in consultation with Indigenous groups and relevant authorities, and implement a dust management strategy to control dust generated by vehicles as key in reducing the Project's contribution to cumulative dust generation. The dust management strategy could include the measures already committed to by the proponent, such as spraying the shared road between the Project and the Town of Schefferville and washing vehicles prior to leaving the DSO project complex and before entering the Town of Schefferville. In addition to reducing the Project's contribution to dust generation, these measures would or could easily contribute to mitigating the effects of other projects in the area. Furthermore, the proponent would be required to develop an air quality monitoring program, which would include monitoring dustfall at locations potentially affected by the Project, including potentially within the Town of Schefferville.

Taking these factors into account, the Agency is of the view that the mitigation and follow-up measures outlined in Section 7.5 would be effective in addressing the Project's contribution to dust events and concerns related to dust. Effective implementation of the dust management strategy and the proponent's commitments would not only reduce the Project's contribution to cumulative effects on the health and socio-economic conditions of Indigenous peoples, but have the secondary benefit of potentially reducing the contributions resulting from other activities.

The Agency has also identified the following key mitigation measures to mitigate potential cumulative environmental effects:

- The proponent shall participate in any regional initiative(s) if requested by a relevant authority relating to the monitoring and management of cumulative environmental effects likely to result from the Project in combination with other activities, including cumulative health effects and/or effects related to dust generation.

The Agency concludes that, after taking into account the implementation of mitigation measures and follow-up program described above and in Section 7, including the measures committed to by the proponent, the Project, in combination with past, present, and future foreseeable projects, is not likely to result in significant adverse cumulative effects on health and socio-economic conditions of Indigenous peoples.

9 Impacts on Potential or Established Aboriginal or Treaty Rights

This section summarizes how the Project may impact potential or established Aboriginal or treaty rights. Appendix F summarizes issues of concern identified by Indigenous groups prior to release of the draft EA Report. Appendix G summarizes issues of concern identified by Indigenous groups and the proponent on the draft EA Report and potential conditions.

9.1 Potential or established Aboriginal or treaty rights in the project area

Naskapi Nation of Kawawachikamach

The community of Kawawachikamach is located approximately 25 kilometres from the project area in the Province of Quebec and their claimed traditional territory extends into Labrador. The Naskapi Nation of Kawawachikamach uses the area surrounding the Project extensively and relies on traditional practices to meet the majority of their nutritional requirements. It also values Kauteitnat as a preferred area to exercise rights.

The Naskapi Nation of Kawawachikamach and the governments of Canada and Quebec are signatories to the Northeastern Quebec Agreement, signed in 1978, which modified the James Bay and Northern Quebec Agreement to include them. The Agreement provided financial compensation to members of the Naskapi Nation of Kawawachikamach as well as lands and other rights. The project area is within the asserted traditional territory of the Naskapi Nation of Kawawachikamach in Labrador and is very close to their Category IB-N lands as per the Northeastern Quebec Agreement. It is possible that effects from the Project could occur on lands on which it has established treaty and Aboriginal rights, as well as those lands in Labrador to which it claims Aboriginal rights.

Nation Innu Matimekush-Lac John and Innu Takuaikan Uashat mak Mani-Utenam

The Nation Innu Matimekush-Lac John shares traditional territory with the Innu of Uashat mak Mani-Utenam and these groups have made a joint assertion of rights and title to a portion of Labrador which includes the project area. The shared claim is based on family connections and was accepted by the federal government in 1979, but has not yet been negotiated. The Innu of Uashat mak Mani-Utenam are part of a process that has been established to mediate the overlapping claims of the Quebec and Labrador Innu.

The Nation Innu Matimekush-Lac John is comprised of two communities: Matimekush and Lac John. Matimekush is located within Schefferville on the shore of Lac Pearce and has an area of 0.68 square kilometres. The Lac John community covers an area of 0.23 square kilometres and is located 3.5 kilometres from Matimekush and from the center of Schefferville.

During the 1950s, the Innu of Matimekush-Lac John and Uashat mak Mani-Utenam were granted lots within the Saguenay Beaver Reserve. They consider these lots as family areas on which they have title. The project area is within a Beaver Lot area belonging to two families from Uashat.

The Innu of Matimekush-Lac John use the area surrounding the Project extensively and still rely on the land and traditional harvesting for much of their nutritional requirements. Also, the Project is located very close to Kauteitnat, which is a sacred site to the Quebec Innu, valued for knowledge transfer.

The Innu of Uashat mak Mani-Utenam continue to use their traditional territory, but contemporary traditional activities are focused primarily on the southern portions of their territory, at the mouth of rivers, along the coast of the Saint Lawrence River, and along the existing highway. The reserve is located a significant distance from the Project (approximately 500 km), but given the close family connections with the Innu of Matimekush-Lac John, traditional use in the local assessment area occurs on a semi-regular basis.

Innu Nation

The Innu Nation represents two Labrador Innu bands: the Sheshatshiu Innu First Nation and the Mushuau Innu First Nation, both recognized under the *Indian Act* in 2002. The Innu Nation is a not-for-profit corporation and works on behalf of these two First Nations and their members. It oversees industrial developments on their territory, and ensures that these activities are carried out in a way that respects the Aboriginal rights of the Innu of Labrador. Further, the Innu Nation is also involved in on-going negotiations regarding land claims and self-governance. While the Sheshatshiu Innu First Nation and the Mushuau Innu First Nation represent their members on matters that affect their respective reserves, their band council chiefs sit on the Innu Nation board of directors.

In 2011, the Innu Nation ratified an agreement-in-principle for its comprehensive claim in Labrador. Within the agreement-in-principle, geographic areas and categories of lands are identified. The project area is inside the Western Labrador Economic Major Developments Impacts and Benefits Agreement Area. At the conclusion of the negotiated agreement, proponents will be required to sign Impact Benefit Agreements with the Innu Nation for major projects in this area.

While the Project is within the asserted traditional territory of the Labrador Innu, it is geographically far from the Innu communities of Mushuau and Sheshatshiu. The Innu Nation expressed throughout the EA that its area of interest was the potential effect of the Project on caribou, as well as cumulative effects from the amount of mining in the Labrador trough on caribou and caribou habitat. Caribou have been continually harvested by members of the Innu Nation throughout their occupation of the land,[13] including caribou from the George River Caribou Herd. While there is no use by the Innu Nation members in the project area, the potential effects of the Project and the cumulative effects of mining and other activities on caribou populations and their potential recovery is of great concern to the Innu Nation.

NunatuKavut Community Council

Membership of the NunatuKavut Community Council is comprised of those who identify as southern Inuit or as Metis. The members primarily reside in Happy Valley Goose Bay and along the southern coast

[13] Comments from Innu Nation on draft EIS.

of Labrador. However, the community is known to have a number of members in the Wabush and Labrador City areas as well.

In June 2010, the NunatuKavut Community Council submitted a new statement of claim, "Unveiling NunatuKavut", which included updated information.[14] This claim was submitted by NunatuKavut as Southern Inuit people, and is being evaluated by Indigenous and Northern Affairs Canada to determine whether to move to formal negotiations.

The project area is within the claim area of NunatuKavut, but there is no documented use in the project area or surrounding areas and the site is not within preferred areas. A 2012 land use study undertaken for the Kami Iron Ore project indicated that NunatuKavut Community Council members living in western Labrador undertake traditional use and travel throughout the region, although the nearest community, Wabush, is approximately 250 kilometres from Schefferville. Caribou has also been identified as an important resource to NunatuKavut Community Council members and they have expressed interest in potential impacts of the Project on caribou.

9.1.1 *Potential adverse impacts of the Project on potential or established Aboriginal or treaty rights*

Proponent's Views

The proponent provided information of the Indigenous groups' histories, Aboriginal rights, treaties, agreements, and land claims in the area, as well as an overview of existing Impact Benefit Agreements. Through its assessment of effects on the socio-economic environment, the proponent explored biophysical effects of the Project on traditional land-use practices, which included an assessment of potential cultural effects on caribou hunting and Kauteinat (Sections 7.3 and 7.4). Some of this assessment is further discussed below as it pertains to possible impacts on potential or established Aboriginal or treaty rights.

Fishing

Within the proponent's assessment of effects to fish and fish habitat, effects to the Triangle Lake, Pinette Lake, and Brunetta Lake watersheds were assessed. Most potential changes to fish and fish habitat were predicted to be in Goodream Creek (a tributary of Triangle Lake) which is adjacent to the Project and would have effluent discharged into it. Goodream Creek is not a preferred area for fishing and currently there is little to no fishing activity in it; however, it does support Brook Trout populations, which is an important species harvested by Indigenous groups.

The proponent identified Triangle Lake and Pinette Lake as preferred fishing areas, where the primary species harvested are Brook Trout and Lake Trout. For these waterbodies, the proponent predicted there would be no residual effects to fish and fish habitat after mitigation was implemented. Furthermore, the proponent indicated that adaptive management measures would be undertaken

[14] The document *Unveiling NunatuKavut*, which includes information on the statement of claim, is available at: http://www.nunatukavut.ca/home/files/pg/unveiling_nunatukavut.pdf.

should monitoring results reveal it to be necessary. These measures could include the need for fish habitat compensation, if required by Fisheries and Oceans Canada, although such a requirement is not anticipated. See Section 7.1 for a full list of mitigation, monitoring and follow-up commitments and requirements related to fish and fish habitat.

Subsistence and Traditional Caribou Hunting

The proponent concluded there would be no adverse environmental effect on the George River Caribou Herd from the Project or from cumulative effects of the Project. By extension, the proponent concluded there would be no adverse impact on the practice of hunting caribou since the ability to hunt caribou in preferred areas has already been dramatically diminished by the reduction of the herd. Nevertheless, the proponent did describe mitigation measures which it would implement to reduce potential impacts from the Project to caribou in the event that they did return to the project area during the life of the Project (refer to Section 6.2).

Other Subsistence and Traditional Activities

The proponent stated that the project area is used for opportunistic hunting as users travel through it to their preferred hunting and gathering areas in the Howells River Valley. The proponent also demonstrated that there is intensive use by members of the Naskapi Nation of Kawawachikamach and the Nation Innu Matimekush-Lac John in preferred areas within 0.5 to 2 kilometres of the project area.

An important exception to the project area being used as an opportunistic area are the trap lines located within the project area which belong to two families from Uashat. The proponent found that the trap lines would be rendered unusable as a result of the Project. In the land use study undertaken by the proponent, participants articulated that the history of regulation and ownership of trap lines is complex and related to traditional governance structures which were taken over by provincial governments in the middle of the 20th century. The proponent worked directly with the affected families to compensate them for the loss of the trap lines.

Indigenous Groups' Views

Fishing

The Nation Innu Matimekush-Lac John and the Naskapi Nation of Kawawachikamach stated that fishing is an important activity and contributes to the traditional diet. Concerns have been expressed about residual effects from the Project on fish and fish habitat, particularly about the quantity and quality of fish in preferred areas. The Naskapi Nation of Kawawachikamach requested that the proponent monitor iron concentration in effluent from the Project and in watercourses downstream, in addition to other monitoring parameters. The Naskapi Nation of Kawawachikamach also requested that fish and fish habitat monitoring results, including fish tissue sampling results, be communicated to local communities, otherwise people would avoid using areas around the Project. There have been longstanding concerns about the effect of mining on fish and fish habitat which has resulted in physical alterations to preferred fishing areas in addition to changes to the appearance or quality of fish and their tissue. These changes have resulted reduced fish consumption habits.

Through consultation, the Nation Innu Matimekush-Lac John expressed concerns about contamination to fish and fish habitat from the Project and other projects operating in the same watersheds, and noted that the potential contamination of fish would adversely affect their right to fish in and around the project area. It relayed that there have been documented accidents and malfunctions from other sites, resulting in uncontrolled releases of red water (i.e. iron ore-tainted water) into streams and creeks. The Nation Innu Matimekush-Lac John believes that accidents and malfunctions could act cumulatively to affect the right to fish in preferred areas.

Subsistence and Traditional Caribou Hunting

All Indigenous groups who submitted comments and participated in consultation during the EA expressed that the right to hunt caribou is integral to their culture and needs to be preserved. All groups also relayed that this right has been severely eroded already due to the decline in the George River Caribou Herd, as well as the declines of other herds. The Naskapi Nation of Kawawachikamach and the Nation Innu Matimekush-Lac John provided information on their traditional and preferred caribou hunting areas and the effects of industrial development on the decline of the herd and their ability to practice this right (Sections 6.2 and 7.4). Information provided by the groups suggests that a multitude of factors have contributed to the decline of the right to hunt. The most notable factor is the severe decline of caribou populations and the absence of caribou from traditional hunting areas, but other factors include the effects of industrial development on access and migratory patterns of caribou and changes in Indigenous lifestyles (e.g. switch to wage labour has limited the ability of individuals to travel farther afield and go on longer hunting expeditions). All groups expressed desire for the herd to recover, which they believe will happen if given the opportunity and based on their knowledge of previous fluctuations in caribou populations, and for communities to have the ability once again to hunt in preferred areas.

To help mitigate potential effects of the Project on the right to hunt caribou, the Nation Innu Matimekush-Lac John suggested the proponent restore access to a preferred hunting area (i.e. lands to the northwest of the Project beyond the DSO4 area) that had been lost due to industrial development. The proponent agreed to this key mitigation measure.

Other Subsistence and Traditional Activities

Participants in the proponent's land use study shared information on the history and current context and importance of trapping to the culture, food security, and economy of the Innu of Matimekush-Lac John and the Naskapi of Kawawachikamach. It is understood that trapping is a right of all Indigenous community members who have utilized the resources for generations, as was communicated to the Agency through meetings, submissions, and the proponent's EIS.

The importance of trapping has changed over time. With the move to wage labour and settled communities, there has been less emphasis on trapping for an economic livelihood. However, trapping has continued to be an important food source and a means of providing some preferred foods, such as beaver. Trapping takes place close to settlements and in a cyclical fashion following the seasons, with late fall and winter being the most productive.

As summarized in Section 7.4, all groups who use this area to practice rights shared views on the adverse impacts of disturbance from mining operations, such as from noise, light, and dust on their use of preferred areas. These impacts apply to general subsistence and traditional activities, but also to the specific activities discussed above (i.e. fishing and caribou hunting). The presence of atmospheric dust and dust deposition, in particular, can be a deterrent to using sites. Both the Innu of Matimekush and the Naskapi oh Kawawachikamach expressed that while the project area is not a preferred or heavily used area for trapping, it is located in close proximity to high value and intensively used areas. Concerns were raised throughout the EA about the potential effect of dust, both from the Project and cumulatively from other projects in the area, on curtailing and inhibiting use of preferred areas.

Agency's Views

Fishing

While the proponent and Indigenous groups did not frame the majority of comments or analysis on fish and fish habitat specifically from a rights-based perspective, information, comments, and analysis were put forward on the use and the value of fish and fishing to communities. Information provided through the EIS, information requests, and comments received indicate that the right to fish could potentially be modified if there was an accident or malfunction of drainage ditches or sedimentation ponds at the project site. Under normal operating conditions, the Project would not likely have an effect on fish populations or fish health and would not result in unacceptable changes to safe consumption of fish tissue. However, there could be sensory disturbances to those using nearby areas or changes to the appearance of fish and fish tissue which could deter fishers from utilizing the resource, thus limiting the practice of fishing rights. Similarly, Indigenous groups have indicated that perceived contamination of resources from mining activities also results in a reduced desire to fish in certain areas, which could also affect the practice of fishing rights.

Both the proponent and the Naskapi Nation of Kawawachikamach put forward mitigation measures which would serve to reduce impacts of the Project on fish and fish habitat and also reduce adverse impacts on the right to fish (Section 7.1). For instance, measures would ensure that blasting does not affect fish and that surface water from the mine site is collected, treated, and discharged within limits to ensure minimal impact to local waterbodies and preferred areas. Additional monitoring and follow-up programs would be required for water quality and quantity, and fish and fish habitat to ensure that potential changes to preferred areas to fish (Pinette Lake, Triangle, and Burnetta Lake) are detected early so as to adaptively manage any potential impacts. Results of these programs would be shared with communities through a communications plan which would be developed in consultation with the Indigenous groups (Section 7.4).

The Agency is of the view there would be minimal changes in practicing the right to fish from the Project under normal operations provided mitigation measures are strictly implemented to reduce the effects of the Project and manage any observed effects to water quality and quantity, and fish or fish habitat. In addition, the proponent would monitor fish and fish habitat, including fish tissue, and communicate results to local communities to reassure fishers that the resources remain fit for consumption. Should accidents or malfunctions occur, there could be an adverse impact to the right to fish.

Subsistence and Traditional Caribou Hunting

The potential effects of the Project to both the George River Caribou Herd, as well as the current use of caribou as a cultural and community sustaining resource, are considered in Sections 6.2 and 7.4. The Agency concluded that the George River Caribou Herd would not be adversely affected by the Project unless the herd reoccupies portions of its historic range closer to the project area, in which case the Project has the potential to modify or limit preferred hunting locations.

The Project would cause some permanent changes to the landscape from the pit, waste rock, storage piles, and roads, as well as ongoing disturbance from noise for the life of the Project. The Agency believes that should the herd recover during the life of the Project, caribou may avoid the project area and up to 20 kilometres around the Project due to ongoing disturbances from operations. This alteration of the landscape and disturbance from the Project could contribute to further modification of the right to hunt caribou or delay exercising the right in a preferred area over the life of the Project. The Agency notes that groups who participated in the land use study emphasized that continued mine development in the area near Kauteitnat is not acceptable and could completely erode any chance to recover the right to hunt in this special area near their communities. For this reason, the Agency finds that, while the Project would make a small and manageable contribution to cumulative effects on caribou themselves, the Project's contribution to the erosion and modification of the right to hunt caribou, when nested in the larger cumulative context of existing and future mine development, is of greater consequence and requires mitigation, monitoring, and follow-up. Key mitigation can be found in Section 7.4 and includes opening access up to another preferred caribou hunting area which was lost due to other mining activities. The proponent would also monitor caribou and would implement additional mitigation measures as directed by the province of Newfoundland and Labrador. If the George River Caribou Herd appears to be reoccupying portions of its historic range closer to the project area, the proponent would also develop additional adaptive management measures in consultation with appropriate government authorities. Furthermore, the project area would be rehabilitated to support caribou habitat, to the extent possible.

In addition, the proponent is currently in discussion with all five Indigenous groups to incorporate the Project into impact and benefit agreements that already exist for its other projects in the region. The agreements with the Nation Innu Matimekush-Lac John and the Naskapi Nation of Kawawachikamach would contain provisions for accommodating the loss of subsistence and traditional activities, including caribou hunting, in preferred areas by way of providing funds to assist with costs for harvesters to access other areas for these activities. The Agency finds that these measures, combined with the measures designed to avoid impacts to the existing herd and caribou habitat, can assist in preserving the right to hunt caribou in its diminished state.

The proponent also committed to contribute financially to the Ungava Research Project, which serves to preserve and protect existing caribou and encourage practices and studies for recovery. This initiative may contribute to sufficient herd recovery so that hunting could again take place in traditionally preferred areas.

Other Subsistence and Traditional Activities

The Agency acknowledges that hunting, trapping and gathering are important rights that have helped sustain communities over time and that the move to wage labour has had an impact on the expression of the rights. The Agency finds that the expression of the rights may be negatively impacted by several pathways including the changes to the environment caused by the Project from dust, noise, light, and reduced access.

As discussed throughout this Report, the potential impacts of dust generated by the Project and cumulative impacts of dust from other mining projects in the area is an issue which has a potential effect on multiple valued components, including the current use of lands and resources for traditional purposes and the health and socio-economic conditions of Indigenous peoples. Dust generation and dust events can also affect the practice of rights, including the right to hunt, fish, trap, and gather, by making it more difficult or uncomfortable to exercise rights in areas where dust is a nuisance or thought to be detrimental to one's health or the health of resources. Several key mitigation measures which would reduce the effects on dust are outlined in Section 7.5 (Health and Socio-economic Conditions of Indigenous Peoples). For instance, spraying the Howse haul road, developing and implementing a dust management strategy to control dust generated by vehicles, and rehabilitating the project site would serve to reduce the impact of the Project as well as cumulative adverse impacts to the exercise of rights.

Changes in access also have the potential to affect the practice of rights. The change in access to preferred areas that would be caused by the construction of the Project has been a primary concern from the beginning of the EA process. Construction of the Project would eliminate the main access route which runs through the project area and into the Howells River Valley, a preferred and heavily used area. While an alternate route has been provided and would be provided for the life of the Project, it adds time to the journey which may discourage some users from accessing preferred areas and practicing rights as often as they would like. The proponent committed to providing some compensation for this additional time and expense.

The Agency notes that mitigation measures which reduce or eliminate effects from dust and other environmental disturbance would serve to reduce the adverse impacts on the rights to trap, hunt, and gather. Further, the Agency notes that the new access road would enable individuals to continue to practice rights to fish, hunt, trap, and gather in preferred areas, even though the project area would no longer be available for opportunistic hunting. The Agency finds with the key mitigation implemented for the biophysical valued components, the health and socio-economic conditions of Indigenous peoples, and direct compensation for the loss of the trap lines, no adverse impacts from the Project are expected on the right to hunt, trap, and gather.

9.2 Issues to be Addressed Following the Environmental Assessment

Although it is not considered likely, Fisheries and Oceans Canada may require an authorization under the *Fisheries Act* for the Project if sufficient drawdown is observed in Triangle Lake, or if other unforeseen and immitigable effects to fish habitat are documented. Such an authorization is not

expected, but if one is required, there is a consultation process for which Fisheries and Oceans Canada would be responsible.

Environment and Climate Change Canada would ensure the proponent is meeting its requirements under the *Metal Mining Effluent Regulations*. The proponent would be required to monitor effluent quality and any changes to fish and fish habitat downstream of the Project. Environment and Climate Change Canada has the authority to take enforcement action if the proponent is in violation of the requirements of the *Metal Mining Effluent Regulations*.

The Agency's Compliance and Enforcement Unit is responsible for verifying the proponent's compliance with the conditions set out in the Decision Statement and enforcing the provisions of CEAA 2012. The Compliance and Enforcement Unit can be reached via email at Compliance.Conformite@ceaa-acee.gc.ca.

9.3 Agency Conclusion Regarding Impacts to Aboriginal Rights

Based on the analysis of environmental effects of the Project on Indigenous peoples and the related mitigation measures outlined in Section 7, as well as the potential impacts and accommodation measures discussed above, the Agency is of the view that project-related activities are expected to have a low impact on potential or established Aboriginal or treaty rights. Mitigation and accommodation measures should allow the practice of rights in a similar manner as before the Project.

Input from Indigenous groups on the draft EA Report was considered and assisted the Agency in finalizing its conclusions regarding potential impacts from the Project on potential or established Aboriginal or treaty rights and interests.

10 Conclusions and Recommendations of the Agency

In preparing this EA Report, the Agency took into account the proponent's EIS, its responses to information requests, and the views of government agencies and Indigenous groups.

The environmental effects of the Project and their significance have been determined using assessment methods and analytical tools that reflect current accepted practices of environmental and socio-economic assessment practitioners, including consideration of potential accidents and malfunctions.

The Agency concludes that, taking into account the implementation of mitigation measures, the Howse Property Iron Mine Project is not likely to cause significant adverse environmental effects as defined in CEAA 2012.

The Agency has identified key mitigation measures and follow-up program requirements for consideration by the Minister of Environment and Climate Change in establishing conditions as part of the EA Decision Statement, in the event that the Project is permitted to proceed.

11 Appendices

Appendix A Environmental Effects Rating Criteria

Valued Component	Magnitude	Geographic Extent	Timing	Duration	Frequency	Reversibility
Fish and Fish Habitat	**Low:** Little to no effect on fish health or fish populations in the receiving environment. **Moderate:** Measurable effect on fish health or fish populations in receiving environment, but one which would not likely result in changes to the regional status of fish populations and health. **High:** Measurable effect on fish health or fish populations in the receiving environment which could result in changes to the regional status of fish populations and health.	**Site-specific:** The residual effect is limited to the project footprint. **Local:** The residual effect extends beyond the project footprint but not beyond the local study area. [15] **Regional:** The residual effect extends across the regional study area or beyond.	**Inconsequential Timing:** Effects expected mostly outside of critical periods (spawning and incubating), with little or no residual effects throughout critical periods. **Moderate Timing:** Effects expected mostly outside of critical periods (spawning and incubating), with some residual effects throughout critical periods (spawning and incubating). **Unfavorable Timing:** Effects expected throughout critical periods (spawning and incubating).	**Short-term/Temporary:** The effect is restricted to the construction phase or limited to less than a year. **Medium-term:** The effect extends through the end of the operation and/or decommissioning phases. **Long-term:** The effect extends into closure and beyond.	**Once:** The residual effect occurs once during any phase of the Project. **Intermittent:** The residual effect occurs occasionally or at intermittent intervals during any phase of the Project. **Continuous:** The residual effect occurs continuously, year-round during any phase of the Project.	**Reversible:** The residual effect is reversible within the lifetime of the Project or after project decommissioning and reclamation. **Partially Reversible:** The residual effect is partially reversible within the lifetime of the Project or after project decommissioning and reclamation. **Irreversible:** The residual effect will persist after project decommissioning and reclamation.

[15] The local study areas and regional study areas defined for each valued component are described in Table 2, Section 1.2.4.

Valued Component	Magnitude	Geographic Extent	Timing	Duration	Frequency	Reversibility
Migratory Birds	**Low:** Little or no effects on migratory birds or unique migratory bird habitats. **Moderate:** Detectable change on many individual migratory birds or unique migratory bird habitats, but one which would not likely change the status of the regional populations or availability of unique habitats. **High:** Detectable change on the majority of migratory birds or unique migratory bird habitats which would result in changes to the status of regional populations or availability of unique habitats.	**Site-specific:** The residual effect is limited to the project footprint. **Local:** The residual effect extends beyond the project footprint but not beyond the local study area. **Regional:** The residual effect extends across the regional study area or beyond.	**Inconsequential Timing:** Timing of predicted project activities is not expected to affect any sensitive activities in the birds' life cycle. **Moderate Timing:** Timing of predicted project activities may affect some sensitive activities (i.e. migration, late rearing, moulting). **Unfavourable Timing:** Timing of predicted project activities may affect some critical birds' activities, i.e.: breeding and brooding or during migration in an important staging area.	**Short-term/Temporary:** The effect is restricted to the construction phase or limited to less than a year. **Medium-term:** The effect extends through the end of the operation and/or decommissioning phases. **Long-term:** The effect extends into closure and beyond.	**Once:** The residual effect occurs once during any phase of the Project. **Intermittent:** The residual effect occurs occasionally or at intermittent intervals during any phase of the Project. **Continuous:** The residual effect occurs continuously, year-round during any phase of the Project.	**Reversible:** The residual effect is reversible within the lifetime of the Project or after project decommissioning and reclamation. **Partially Reversible:** The residual effect is partially reversible within the lifetime of the Project or after project decommissioning and reclamation. **Irreversible:** The residual effect will persist after project decommissioning and reclamation.
Physical or Cultural Heritage and Historical or Archaeological Sites or Structures	**Low:** The effect results in a change from baseline conditions, but the feature of physical and/or cultural heritage importance would remain relatively unchanged and activity associated with the feature and its relative value would not be affected. **Moderate:** The effect results in a change from baseline conditions, and the feature of physical and/or cultural heritage importance would be	**Site-specific:** The residual effect is limited to the project footprint. **Local:** The residual effect extends beyond the project footprint to the local study area. **Regional:** The residual effect	**N/A**	**Short-term/Temporary:** The effect is restricted to the construction phase or limited to less than a year. **Medium-term:** The effect extends through the end of the operation and/or decommissioning phases. **Long-term:** The effect	**Once:** The residual effect occurs once during any phase of the Project. **Intermittent:** The residual effect occurs occasionally or at intermittent intervals during any phase of the Project. **Continuous:** The residual effect	**Reversible:** The residual effect is reversible within the lifetime of the Project or after project decommissioning and reclamation. **Partially Reversible:** The residual effect is partially reversible within the lifetime of the Project or after project decommissioning and reclamation.

Valued Component	Magnitude	Geographic Extent	Timing	Duration	Frequency	Reversibility
	noticeably changed. Activity and use associated with the feature and its value would be affected, but use could continue. **High:** The feature of physical and/or cultural heritage importance would be removed, destroyed, and/or use associated with the feature would no longer continue.	extends across the regional study area or beyond.		extends into closure and beyond.	occurs continuously, year-round during any phase of the Project.	**Irreversible:** The residual effect will persist after project decommissioning and reclamation.
Current Use of Lands and Resources for Traditional Purposes	**Low:** The effect results in a change from baseline use conditions, but the activity and use could be practiced in the same or similar manner as before. **Moderate:** The effect results in a change from baseline use conditions, and preferred locations or means to practice the activity and use may be modified or limited. **High:** The effect results in a change from baseline use conditions, and the activity can no longer be carried out in the preferred manner and locations.	**Site-specific:** The residual effect is limited to the project footprint. **Local:** The residual effect extends beyond the project footprint to the local area. **Regional:** The residual effect extends across the regional study area or beyond.	**Inconsequential Timing:** Timing of predicted project activities is not expected to affect any current use activities. **Moderate Timing:** Timing of predicted project activities may affect some timing-sensitive current use activities (i.e. goose hunting season). **Unfavourable Timing:** Timing of predicted project activities would affect particularly sensitive or important timing-sensitive current use activities.	**Short-term/Temporary:** The effect is restricted to the construction phase or limited to less than a year. **Medium-term:** The effect extends through the end of the operation and/or decommissioning phases. **Long-term:** The effect extends into closure and beyond.	**Once:** The residual effect occurs once during any phase of the Project. **Intermittent:** The residual effect occurs occasionally or at intermittent intervals during any phase of the Project. **Continuous:** The residual effect occurs continuously, year-round during any phase of the Project.	**Reversible:** The residual effect is reversible within the lifetime of the Project or after project decommissioning and reclamation. **Partially Reversible:** The residual effect is partially reversible within the lifetime of the Project or after project decommissioning and reclamation. **Irreversible:** The residual effect will persist after project decommissioning and reclamation.
Health and Socio-economic Conditions of Indigenous	**Low:** The effect results in a change from the baseline health status or socio-economic conditions, but the change would be negligible or low and	**Site-specific:** The residual effect is limited to the project	**N/A**	**Short-term/Temporary:** The effect is restricted to the construction phase or limited to less than	**Once:** The residual effect occurs once during any phase of the Project.	**Reversible:** The residual effect is reversible within the lifetime of the Project or after project decommissioning and

Valued Component	Magnitude	Geographic Extent	Timing	Duration	Frequency	Reversibility
Peoples	is of little concern or consequence. **Moderate:** The effect results in a change from the baseline health status or socio-economic conditions, and the change would be of notable concern and consequence. **High:** The effect results in a change from the baseline health status or socio-economic conditions, and the change would be of serious concern and consequence.	footprint. **Local:** The residual effect extends beyond the project footprint to the local study area. **Regional:** The residual effect extends across the regional study area or beyond.		a year. **Medium-term:** The effect extends through the end of the operation and/or decommissioning phases. **Long-term:** The effect extends into closure and beyond.	**Intermittent:** The residual effect occurs occasionally or at intermittent intervals during any phase of the Project. **Continuous:** The residual effect occurs continuously, year-round during any phase of the Project.	reclamation. **Partially Reversible:** The residual effect is partially reversible within the lifetime of the Project or after project decommissioning and reclamation. **Irreversible:** The residual effect will persist after project decommissioning and reclamation.
Transboundary Effects - Greenhouse Gas Emissions	**Low:** Emissions represent a small contribution to provincial or national emissions. **Moderate:** Emissions represent a moderate contribution to provincial or national emissions but are within regulatory limits and objectives. **High:** Emissions cause an exceedance of provincial or national emissions objectives or standards.	**Local:** The residual effect is limited to the project footprint. **Local:** The residual effect extends beyond the project footprint to the local study area. **Regional:** The residual effect extends across the regional study area or beyond.	**N/A**	**Short-term/Temporary:** The effect is restricted to the construction phase or limited to less than a year. **Medium-term:** The effect extends through the end of the operation and/or decommissioning phases. **Long-term:** The effect extends into closure and beyond.	**Once:** The residual effect occurs once during any phase of the Project. **Intermittent:** The residual effect occurs occasionally or at intermittent intervals during any phase of the Project. **Continuous:** The residual effect occurs continuously, year-round during any phase of the Project.	**Reversible:** The residual effect is reversible within the lifetime of the Project or after project decommissioning and reclamation. **Partially Reversible:** The residual effect is partially reversible within the lifetime of the Project or after project decommissioning and reclamation. **Irreversible:** The residual effect will persist after project decommissioning and reclamation.

Appendix B Summary of Environmental Effects Assessment

Residual effect	Predicted degree of effect after mitigation						Significance of residual adverse environmental effects
	Magnitude	Extent	Timing	Duration	Frequency	Reversibility	
Fish and Fish Habitat							
Residual effect to fish and fish habitat from changes in water quality and quantity	Low	Local	Moderate Timing	Medium-term	Intermittently	Reversible	Not Significant
Migratory Birds							
Residual effect to migratory birds and nests from habitat loss and alteration	Low	Local	Moderate Timing	Short-term	Once	Partially Reversible	Not Significant
Residual effect to migratory birds from sensory disturbance	Low to Moderate	Local	Moderate Timing	Medium-term	Continuous	Reversible	Not Significant
Physical or Cultural Heritage and Historical or Archaeological Sites or Structures							
Residual effect on historic or archaeological sites or structures	Low	Local	N/A	Short-term	Once or Intermittent (if at all)	Partially reversible	Not Significant
Residual effect on Kauteitnat	Moderate	Local	N/A	Medium- to Long-term	Continuous	Partially reversible	Not Significant
Current Use of Lands and Resources for Traditional Purposes							
Residual effect on access	Low	Local	N/A	Medium- to Long-term	Continuous	Partially Reversible	Not Significant
Residual effect on subsistence and traditional caribou hunting	Moderate	Regional	N/A	Medium-term	Continuous	Reversible	Not Significant
Residual effect on other subsistence and traditional activities	Moderate	Local	Moderate Timing	Medium-term	Continuous	Reversible	Not Significant

Residual effect	Predicted degree of effect after mitigation						Significance of residual adverse environmental effects
	Magnitude	Extent	Timing	Duration	Frequency	Reversibility	
Health and Socio-economic Conditions of Indigenous Peoples							
Residual effect on health status of Indigenous peoples	Low	Local	N/A	Medium-term	Continuous	Reversible	Not Significant
Residual effect on socio-economic conditions of Indigenous peoples	Low	Local	N/A	Medium-term	Continuous	Reversible	Not Significant
Transboundary effects – Greenhouse Gas Emissions							
Residual effect from greenhouse gas emissions	Low	Regional	N/A	Long-term	Continuous	Irreversible	Not Significant

Appendix C Mitigation Measures, Monitoring, and Follow-up Activities Proposed by the Proponent

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
All Valued Components	*General mitigation measures* • Create a rehabilitation plan. • Follow good practices presented in the rehabilitation plan. • Keep stripping, clearing, excavation, backfilling, and grading operations to a strict minimum on the work sites. • Conduct blasting in such a way that air pressure at the receptors (camps) is less than 128 decibels. • Install speed limit and safe driving road signs, in conjunction with the Town of Schefferville, between Schefferville and the Timmins work site to reinforce driving laws. The speed limit would be enforced at 70 km/hour on the main mining road north of the Schefferville landfill, and at 50 km/hour between the Schefferville landfill and the town of Schefferville. The speed limit would apply to all road users.	• Submit reports required by governments by the stipulated deadlines. • Produce post-mining and post-rehabilitation monitoring reports. • Keep blasting data for two years, including the following: vibration speed, vibration frequency on the ground, air pressure, and blasting patterns. Respect maximum vibration speeds. • Monitor, in partnership with the Sûreté du Québec, respect of applicable speed limits.
Fish and Fish Habitat	*Timber management* • Ensure that the person in charge of removing trees has a permit for public lands or an authorization in the case of private land, prior to work commencing. • Preserve the root structure of trees that must be removed along the bank of a watercourse to maintain bank stability. • Clear only 5 m wide openings at intervals of at least 100 m if access to a watercourse or lake is necessary. • Prohibit piling organic matter from topsoil stripping, or logging and commercial wood waste less than 20 m from a lake or watercourse, in a wetland, or in the	• Employ blast monitoring techniques using seismographs in nearby deposits being mined to determine the extent of any ground vibration effects and verify that there is no effect on Pinette Lake. • Conduct continued seismographic monitoring in the project area away from Pinette Lake, to

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	water. • Determine the most suitable method to dispose of logging and commercial wood waste (e.g. in swaths, chipping, burning, elimination at an authorized disposal site). *Waste management practices* • Refrain from dumping any waste into aquatic environments, including waste from cutting vegetation or stripping the soil. All waste accidentally introduced into aquatic environments must be removed as quickly as possible. *Hazardous materials* • Implement a hazardous waste management plan in the event that fuel or other hazardous substances are spilled. • Maintain spill kits for recovering oil products and hazardous materials on the worksite at all times. • Ensure each vehicle and piece of machinery on the site has enough absorbent materials to intervene rapidly in the event of a spill. A list of materials and intervention methods to be used in the event of a spill must be approved by the supervisor. • Report all accidental spills immediately to the person in charge of the emergency response plan, which would have been drawn up and approved before work start-up. • Contact the responsible provincial or federal department if harmful substances are spilled. Prohibit employees from dumping any hazardous material in the environment or wastewater treatment system. This includes scrap and volatile materials, particularly mineral spirits, oil, or paint thinners. • Mark any contaminated areas, if hazardous materials are spilled, and remove	confirm if ground vibrations behave comparably to the areas previously monitored. • Monitor water quality through Newfoundland and Labrador's Real-Time Water Quality Monitoring Network which already has instant water monitoring stations in Goodream Creek and Elross Creek. These stations supply live information on water levels plus a number of water quality parameters. Other stations could be installed in the area at the request of the Province of Newfoundland and Labrador. • Extend the monitoring program under the Metal Mining Effluent Regulations already in place for Tata Steel Minerals Canada's DSO projects to the Howse Project. • Conduct quarterly groundwater and weekly and quarterly surface water sampling from stations located downstream and upstream from the Project in cooperation with all authorities.

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	the surface layer for disposal in accordance with regulations to limit contamination of waterbodies by runoff. Contaminated areas must be backfilled and stabilized to permit revegetation. • Keep hazardous substances, including fuel, at least 100 m from waterbodies or surface drainage channels • Ensure that all tires have been removed and properly disposed of following site closure. *Drilling and blasting* • Draw up an explosives management plan to minimize the amount of ammonia and nitrates released into the natural environment. • Adhere to the Fisheries and Oceans Canada's *Guidelines for the Use of Explosives in or near Canadian Fisheries Waters* when blasting on land. • Ensure that no explosive is detonated in or near fish habitat that produces an instantaneous pressure change greater than 100 kilopascal in the swim bladder of a fish. • Ensure that no explosive is detonated that produces, or is likely to produce, a peak particle velocity greater than 13 millimetres per second in the spawning bed during the period of egg incubation. • Use small charges to scare the fish shortly before the main charge is fired to keep the fish away when blasting near water. • Ensure that no explosive is used in or near water. • Ensure that water left after drilling is blown out using compressed air before the pneumatic loading of the explosives. • Choose the appropriate type of explosive, depending on blasting conditions. • Recover and dispose of explosive waste in an appropriate manner after each blast.	• Conduct effluent monitoring with effluent discharge criteria parameters tested weekly in effluent grab samples and acute lethality test performed monthly. • Convey any observations of unusual fish mortality to local environmental technicians for immediate follow-up, and implement adequate measures to eliminate the identified cause. • Analyze the long-term effects as required by the mining regulation of Canada. Discuss results with the province of Newfoundland and Labrador and Environment and Climate Change Canada. The monitoring program would be adjusted accordingly and integrated with requirements for Elross and Pinette lakes in accordance with the province and Environment and Climate Change Canada's recommendations. • Conduct a visual inspection following blasting activities of nearby water bodies (i.e., Pinette Lake) to confirm no post- blasting

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	• Minimize explosives waste by determining minimum distances between collars and charges for all underground blasting charges, based on geological conditions and the application. *Construction equipment* • Store all equipment and machinery in areas specifically designed for this purpose, particularly parking, washing, and maintenance areas. These zones must be located 60 m or more from watercourses and waterbodies. • Prohibit washing equipment in aquatic environments. • Ensure that fuel-related operations (storage, transportation and handling) comply with the relevant standards and guidelines. All equipment must be refueled more than 15 m from a waterbody. • Ensure that no machinery enters the riparian strip unless regulations permit it. • Equip all pumps and generators near waterbodies with a drip pan. • Inspect equipment at each use to detect leaks and drips. Any leaks must be repaired and reported immediately to the field supervisor. *Management of ore, rock piles, waste rock, and overburden* • Take the necessary steps to prevent wind erosion of stored rock and avoid slippage around the rock and overburden storage sites. • Locate storage areas more than 100 m from the high water mark. • Ensure that only waste rock and overburden is deposited in the storage areas. • Characterize the physico-chemical parameters of the ore and waste rock. *Water management* • Equip freshwater supply pipes with water meters. • Encourage reuse of wastewater from mining operations.	fish mortality has occurred. • Develop a monitoring program to verify the prediction of no connectivity between Triangle Lake and groundwater. Install an automated gauge on Triangle Lake and Morley Lake, and a groundwater monitoring well in close proximity to Triangle Lake, to monitor surface and groundwater levels. • Develop a water quality monitoring program for Goodream Creek and Triangle Lake, including downstream of the sediment pond discharge, during low flow periods to ensure any seepage contamination downstream from the HowseA sedimentation pond is detected. • Establish a surface and groundwater monitoring program, upon completion of mining operations and prior to restoration work, to be approved by the relevant government authority. The monitoring program would continue for two

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	• Ensure that facilities posing risks (ore processing complex, tailings storage area, oil products and chemical storage area, etc.) are built and operated in a manner that prevents any significant deterioration in groundwater quality before and during the mine's operation. • Counter any water level decrease observed in Triangle Lake by increasing the amount of effluent discharged from the HowseA sediment pond. *Erosion and sedimentation control (water budget)* • Transport heavy material in multi-axle trailers for better load distribution. • Ensure that no plant cutting or soil stripping waste is deposited in watercourses or lakes. • Use sediment barriers at the foot of the embankment along steep slopes bordering rights-of-way, or install protective material (straw, wood chips or mats) directly on the slope to reduce the volume of sediments that are transported. • Ensure that no road is built within 60 m of a lake or permanent watercourse or less than 30 m from an intermittent watercourse. If, by exception, such a road is necessary, an authorization must be obtained in advance of construction. The slope of the embankment must be reduced for all built or improved roads located less than 60 m from a lake or permanent watercourse and less than 30 m from an intermittent watercourse. • Install anti-erosion barriers to prevent soil, rocks, or other material from reaching watercourses. Plant wooden stakes 1 to 2 m apart. At the base of the anti-erosion barrier, dig a trench about 10 cm deep and 10 cm wide. Attach the filter fabric to the stakes, being careful to keep 20 cm of filter fabric free to be placed in the trench perpendicular to the barrier. Fill in the trench over the filter fabric and compact the soil. Check the condition of the barrier every six	years following the end of the Project and, based on positive results, an application for reduced monitoring for an additional three years would be made before applying for a release letter from the provincial government. • Test waste rock piles regularly to monitor for acid generation. Any sign of acidity would lead to segregation of acidic waste for further mitigation. • Monitor groundwater quality using observation and sampling sites around facilities that pose risks (ore processing complex, oil products and chemical storage area, etc.).

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	months or after heavy rains. • Store excavated material more than 20 m from watercourses (i.e. outside the riparian strip). • Control the quality of surface runoff and water pumped from excavations by filtering, decanting, or treating the water, or by any other acceptable method. Do not release it directly into a waterbody. • Contain the drilling waste storage area and take the necessary measures to prevent runoff from dispersing into the ground or ensure that it is filtered before it reaches a drainage component. *Additional specific mitigation measures for fish and fish habitat* • Use a peripheral ditch network to intercept all runoff before it reaches water bodies. • Redirect runoff to sedimentation ponds where most of the suspended solids would settle before reaching the environment. Sedimentation ponds would reduce the frequency of effluent discharge to a few weeks in May (spring thaw). For the rest of the year, the water in the pond would either infiltrate or evaporate. • Limit the maximum charges of explosives to be used so that the blast vibration and overpressure limits respect appropriate guidelines. The smallest distance between the pit and a waterbody (Pinette Lake) is 900 m, which limits the charges to 3128 kg per delay to protect fish eggs from vibration and to 1092 kg to protect the fish from overpressure. • Install riprap on both sides of Burnetta Creek from the discharge point to 600 m downstream. • Use unlined sedimentation ponds to reduce total suspended solids discharged to Goodream Creek.	

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
Migratory Birds	*Timber management* • Comply with the Newfoundland and Labrador *Forest Act* and all related regulations. Take the necessary measures to ensure that tree removal complies with the stipulated requirements • Ensure that no clearing is completed in the riparian strip along watercourses or in wetlands without regulatory authorization. • Use a forest technician for the tree removal work and obtain supervisor's authorization prior to cutting • Be particularly careful in wetlands and protected areas. • Remove trees in a way that does not damage vegetation bordering the work sites. Prevent trees from falling outside the work site or into watercourses. If this does occur, remove the trees carefully to avoid any unnecessary disturbance to the area. Do not remove or uproot trees with machinery near the edges of a work site. • Maintain a transition zone around work site in which trees are removed, but stumps are left intact to preserve the shrub stratum. • Clear a maximum width of 1 m when line cutting and surveying. • Use only manual tools for line cutting. *Drilling and blasting* • Limit blasting to approximately once per week during the summer (during the operation phase). *Additional specific mitigation measures for migratory birds and bird species at risk* • Comply with Article 12 of the *Migratory Bird Convention Act*, which forbids the damage, destruction, removal, or disturbance of nests. To avoid destroying nests, vegetation clearing would generally be avoided during the breeding	• Inspect wetlands at least annually to ensure loss of wetland habitat does not exceed what was predicted. • Monitor wetlands during the routine site inspections and conduct a wetland disturbance survey every five years. • Install water table monitoring wells before the beginning of the construction phase to obtain some measurements before pit dewatering begins. Measurements would be taken at least once a month, and once every two weeks from the beginning of operation phase until dewatering ends. • Conduct breeding birds and species at risk monitoring surveys every year for the first three years after the end of the construction phase. After three years, if the predictions are verified, the frequency of the monitoring surveys would be reduced to every five years to track any changes in bird populations. If effects are identified and can be

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	season. This period would extend from May 1 to the first quarter of August (approximately August 7). • Complete a nest survey conducted by a bird expert if any vegetation clearing is required during the breeding period. • Ensure that construction activities taking place during the breeding season would only be done in areas that are already cleared. • Protect any nests found between August 8 and April 30 with a buffer zone determined by a setback distance appropriate to the species, the level of disturbance, and the landscape context until the young have permanently left the vicinity of the nest: • Install a small fence with wooden stakes and galvanized metal T-posts with coloured nylon rope along the posts to identify any ground nests and prevent their destruction by machinery. • Ensure that no traffic, including heavy equipment, be permitted to enter wetlands or any area that is not designated for traffic. • Apply the Tata Steel Minerals Canada plan for the protection of the Rusty Blackbird (i.e. the protection of a riparian strip at least 75 m wide adjacent to riparian and non-riparian wetlands). • Survey the Howse pit area in early and mid-summer every year and if the Bank Swallow is detected, deterrence methods or measures should be taken to render the site inhospitable for nesting. Any nest found would be protected with a buffer zone up to 50 m or more, as suggested by Environment and Climate Change Canada. • Install barriers made from plastic sheeting, or fine-mesh wire before Bank Swallows arrive on their breeding ground. • Strip the entire area all at once rather than progressively whenever possible. • Preserve the top layer of the stripped organic matter (the 40-50 cm layer that	attributed to the DSO Projects, mitigation or compensatory measures would be discussed with the Wildlife Division of the Newfoundland and Labrador Department of Fisheries and Land Resources, and other appropriate government agencies. • Conduct local monitoring specifically for the following species: the Rusty Blackbird, Red-necked Phalarope and the Bank Swallow. • Survey the Howse pit vertical walls in early and mid-summer every year that the mine is in the operations phase. • Cease all activities if a Bank Swallow nest or a colony is found during the follow-up program to allow for any natural behavior to proceed.

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	includes the roots). To the extent possible, the organic matter would be excavated in blocks, without disturbing the various horizons. It would then be deposited in, for example, a disturbed area. The area selected would be an isolated depression (far from any watercourse, so as to avoid increasing suspended matter), which would promote revegetation and, eventually, the regeneration of a wetland. • Ensure that during the work on Burnetta Creek to limit erosion (riprap), specific measures would be taken to limit the effects on the adjacent wetland. If a road has to be built, it is recommended to do it during the winter season. In the event that no road is built and only a temporary access is necessary, a temporary protection mat would be used where machinery would operate. • Use temporary protection mats or limit activities to winter for the work needed on Burnetta Creek. *Erosion and sedimentation control (wetlands)* • Identify erosion-sensitive zones using surface deposit and slope class maps, and avoid working in these areas if possible. • Ensure that excavation and reshaping is done from the top of the embankment and closely monitored to detect any possibility of slippage and to modify work methods if necessary. • Respect the area's natural drainage and take all appropriate measures to permit the normal flow of water. • Comply with instructions on plans and specifications with respect to the area and location of the work, as well as the volume of material excavated. • Avoid removing vegetation from slopes bordering roads or near watercourses. • Ensure that no ditches are dug in the riparian strip on either side of a watercourse. Within the riparian strip, ditch water must be diverted toward a	

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	vegetated area, ideally a wetland. If necessary, build a settling pond outside the riparian strip to receive runoff and sediments. Pond dimensions would depend on the inflow and outflow volume. • Use techniques such as the installation of trenches, retaining banks, or diversion ditches perpendicular to the slope in sloped areas. • Refrain from putting topsoil in a water-saturated area. Ideally, it should be used within 12 months of piling. *Waste management* • Use dry materials (concrete, asphalt, etc.), if quantities are minimal, as fill and bury directly behind the protective work. Wood and plant debris can be buried in the bank directly above the protective work. *Light pollution* • Reduce mine lighting by half when weather forecasts are extreme (thick fog and snowstorms) during the migration period (i.e. May, and from August to October). • Use the minimum amount of pilot warning and obstruction avoidance lighting on tall structures.	
Physical or Cultural Heritage, and Historical or Archaeological Sites or Structures	*Preservation of and access to Kauteitnat* • Locate the open pit 500 m from the foot of Kauteitnat and limit the height of waste rock piles and partial in-pit dump. • Include a signed 500 m buffer zone between the foot of Kauteitnat and all mining infrastructure and activities. • Provide access to the western side of the mountain. • Ensure that no exploration, development, or mining activities occur directly on Kauteitnat by transferring, as appropriate, mining claims covering Irony	• Implement a Cultural Heritage Control Plan to protect any cultural heritage resources that could be directly affected by construction activities. Should a discovery be made during any project phase, the proper means would be taken to protect such

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	Mountain to the local communities by the Government of Newfoundland and Labrador and designate the areas covered as a no-mining area. • The proponent would provide notice of two working days in advance of blasting to indigenous groups when they are using Kauteitnat. Knowledge of upcoming blasting events two days in advance should help to plan activities around Kauteitnat. Ensure that no material or site of cultural heritage value is disturbed by construction activities unless the site has been documented and preserved in accordance with regulatory requirements. • Ensure contractors provide training to its supervisors and heavy equipment operators on any likely types of culturally important sites that could be encountered and procedures to ensure that the sites are not further disturbed until a provincial archaeologist and the local Indigenous groups have been notified. Contractor would review and adhere to Tata Steel Minerals Canada Cultural Heritage Procedure. • Ensure the discovery of historic resources are reported to the Environment Representative first, followed by the Tata Steel Minerals Canada Environmental Specialist, who would then contact the provincial archaeologist at the Provincial Archaeology Office at (709) 729-2462, fax (709) 729-0870. • Take precautions if blasting is necessary within the vicinity of an archaeological site to ensure that blasted material and shock waves do not disturb any part of the site. If necessary, protective covering shall be applied to the site under the supervision of an approved archaeologist. Blasting shall not be undertaken in these areas without notifying the onsite project managers. • Ensure that at the final stage, the maximum height of the dumps/stockpiles would be 60 m for the overburden, 70 m for the waste rock and 12 m for the topsoil, so that Kauteitnat would continue to be the main landmark in the area.	resources. • Facilitate and support the creation of a protected area for Kauteitnat. • Use progressive restoration to give the pit a natural look with water at the bottom and surrounding vegetation. • Ensure that Tata Steel Minerals Canada Environment and Community Affairs Departments monitor all major earthwork operations and investigate all reported cultural heritage items. • Update the Impact Benefit Agreements with all five Indigenous communities impacted by the existing DSO project, to include the Howse Project.
Current Use of	*Subsistence and traditional caribou hunting*	• Mandate the Health, Safety, and

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
Lands and Resources for Traditional Purposes	• Develop and implement a Noise Control Plan (included in TSMC's Environmental Protection Plan) to prevent excessive noise emissions from site operations and construction activities. This plan would identify measures to control the potential effects of noise released by a variety of sources and activities. For example, heavy equipment would be equipped with properly operating noise abatement systems and all materials handling would be carried out in such a way as to avoid unnecessary generation of noise. • Report all caribou sightings to the Health, Safety, and Environment Committee. • Announce blasting activities on the radio two days ahead of time. • Suspend blasting in certain circumstances to avoid excessive disturbance of wildlife. • Yield equipment and vehicles to passing animals. *Specific mitigation measures for caribou* • Ensure that where possible, operation activities avoid areas of wildlife concentration, as traffic would disturb wildlife during critical periods. • Upon receipt of notice from the Ungava project and the CircumArctic Rangifer Monitoring and Assessment network that migratory tundra caribou, which are monitored via satellite collars, come within 100 km of the Howse Project, operations would continue with caution. • If data from the radio collars indicate that any caribou have moved to within 20 km of the Howse Project, the proponent would institute surveys within that radius to monitor their movements in greater detail. The data collected during the surveys (number, age, and sex; location of sightings; topography of sighting location) would be communicated frequently to the authorities concerned, who would be asked for advice with respect to the course of action to be followed, the overall goal being to reduce nuisance.	Environment Committee to do environmental monitoring and oversee and assess the effectiveness of the relevant mitigation measures. • Conduct progressive site restoration. • Pursue financial participation in the Caribou Ungava program to advance research on caribou and on the effects of mining activities on the George River Caribou Herd decline, and on other factors that may play a role in this decline or in the change of migratory paths, for example. Within the framework of the program, researchers would involve the concerned Indigenous communities in its research initiatives by considering their views, their traditional indigenous knowledge in the studies and by involving them in the research activities held on their traditional territories. • Evaluate caribou survey details during the early years of operation. Initially, preference

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	• All activities would cease if caribou are known to be within 5 km of the active pit or the processing complex. • Contact the Wildlife Division of the Newfoundland and Labrador Department of the Environment whenever activity ceases pursuant to the foregoing, to discuss any further steps to be taken. • Reschedule work activities, where necessary, to avoid wildlife encounters. Equipment and vehicles would yield the right-of-way to wildlife. Firearms are prohibited in the workers' camp, except for two that may be used by security personnel in the case of an emergency. *Subsistence and traditional activities (hunting, fishing, trapping, and berry/plant harvesting)* • Allow harvesters to use the completed Timmins Kivivik bypass road to go farther on the land to access resources without experiencing security issues. • Include the Howse Project in the mandate of the already established Health, Safety, and Environment Committee. • Maintain ongoing communication throughout the Project, from construction through to decommissioning and reclamation phases, with the local population through radio programs and bulletins, and via the Health, Safety, and Environment Committee, including environmental updates and reports. • Maximize the presence of Indigenous personnel for all security shifts to facilitate communication with local lands users. Work with the local communities to hold a security course for its members, so that there are additional Indigenous personnel at the security post. • Continue to contribute to a fund as specified in certain Impact Benefit Agreements for traditional activities. Indigenous group leadership determines how the funds are allocated and used. This fund contributes to alleviating the	would be given to fixed-point observations along high ground areas adjacent to the project activity sites and to snowmobile and ATV-based searches by hired members of the local Indigenous groups, with instructions to avoid disturbing the animals. It is expected that the inclusion of Indigenous peoples' help would benefit the knowledge about the movements of caribou in the area. If ground-based surveys do not prove to be useful or feasible, aerial surveys would be initiated. Special care would be taken at all times not to interfere with the activities of Indigenous hunters. Data collected would be communicated frequently to the authorities concerned. • Conduct wildlife surveys every five years on the proponent's/Tata Steel Minerals Canada's properties • Report sightings of wildlife (Wolverine, Caribou, Lynx, etc.) to the Health, Safety, and Environment Committee.

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	financial burden for families who count on subsistence harvesting for its economic and nutritive value, in an area where store-bought food is expensive. *Preservation of and access to Kauteitnat* • Follow the mitigation measures proposed for the preservation of and access to Kauteitnat listed under physical and cultural heritage. *Access to local transportation network, land, and road safety* • Adhere to the environmental protection plan road maintenance measures, which provides for the access road to the workers' camp to be 12 m wide, and all other site roads to be 21 m wide to accommodate large 180-tonne trucks. All roads would have a maximum gradient of 8% to prevent for freezing and slippery conditions during winter. All site roads would require regular maintenance, including grading and ditching. The proponent is also committed to the maintenance of the northern bypass road at least twice per year. • Perform maintenance at least twice per year on the northern bypass road. • Adhere to the environmental protection plan procedures for ATVs, cars, trucks and heavy equipment required for operations activities. Travel in areas outside designated work areas would not be permitted. • Allow access to lands northwest of the DSO and Howse sites via the Timmins-Kivivik bypass road, which was upgraded in 2015 in collaboration with Indigenous groups. It would be maintained once or twice a year. However, the road would not be plowed in the winter. • Use a bus for local workers' transportation to limit road traffic. • Ensure the presence of a safety point (gate) and availability of safety escorts on the main mining road when needed. • Ensure blasting announcements would be made on the radio 48 hours in	Furthermore, monthly Tata Steel Minerals Canada Environmental reports would be made available to the Health, Safety, and Environment Committee members on the shared drive. • Rehabilitate and close the site, following the operation phase of the Project, which would include decommissioning and removing equipment and infrastructure, allowing the remaining sections of the open pit to fill with water, and stabilizing and revegetating the overburden stockpiles and waste rock dumps. Use progressive restoration to give the pit a natural look with water at the bottom and surrounding vegetation. • Ensure that as per the environmental protection plan, sedentary (non-migratory) caribou would be monitored on site through regular site inspections and employee information sessions. Should a sedentary caribou be detected in the vicinity

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	advance of blast periods, and band councils would also be notified. Prior to any blasting, security vehicles would be present on the bypass road to protect the local population. • Control access to the mine road network for safety reasons. If a land user needs to use the mine road network to access a specific area not accessible with the Timmins-Kivivik bypass road, a safety escort to the land users would be provided. • Raise awareness among workers on the importance of safe driving. Measures would be taken for detractors caught disobeying traffic laws. Witnesses of road safety violations would be asked to report the details of observations. • Collaborate with responsible authorities for local road infrastructure within the Government of Québec (Secrétariat au Plan Nord, Ministère des Affaires municipales et Occupation du territoire, Ministère des Transports) and the Town of Schefferville regarding paving of streets, including chemin de la Gare. • Divest, at the end of the Project life and subject to regulatory requirements, ultimate decision making power with respect to the final disposition of roads and other access infrastructure to the Indigenous communities, provided that such decision making power does not raise liability issues for the proponent. *Measures specific to the construction phase* • Ensure the following measures would be put in place to limit traffic during the construction phase: ○ transport workers living in Schefferville, Matimekush, Lac John, or Kawawachikamach to and from the camp by bus; ○ ensure that once the construction of the DSO facilities has been completed, a very limited number of workers would be accommodated in Schefferville, which would considerably limit the number of pick-up trucks on the road between Schefferville and the workers' camp.Workers	of the DSO Timmins project, the animal's location and direction should be noted and monitored.

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	mobilized for the construction of the Project would be accommodated at the Timmins camp; and ○ haul trucks would be used between the Project and the DSO processing complex only once the Project is in operation. • Mark work sites clearly (right-of-way, storage area, etc.) before removing any trees and require clearing to be done around the work sites (branches to be trimmed) so that they can be readily inspected at any time during the work. • Use strong, weather and tear resistant material of a colour that is visible at a distance for marking. If possible, use short lengths of biodegradable tape. *Erosion and sedimentation control* • Ensure that trenches dug on sloping land are stepped or terraced. Ensure that slopes adjacent to access roads are designed for maximum stability. • Ensure that when excavating a trench, put the topsoil, subsoil and excavated rock in separate piles no more than 1 or 2 m high. This makes it possible to backfill the trenches without using material from elsewhere. • Backfill trenches as soon as possible and in reverse order to their excavation, replacing excavated mineral soil first and finishing with the topsoil. • Prioritize the use of topsoil for areas where erosion could cause the most damage, if there is limited availability. • Take the necessary measures to avoid stripping the soil during snow removal operations. • Set aside organic matter and soil for site rehabilitation. *Drilling and blasting* • Use blasted rock as backfill.	
Health and Socio-	*Tree removal and timber management*	• Monitor noise on a monthly basis

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
economic Conditions of Indigenous Peoples	• Ensure that cleared areas that are exposed to the elements are kept to a strict minimum. • Make any usable wood from vegetation stripping accessible to the local communities in a secure location near the site. *Erosion and sedimentation control* • Avoid storing excavated material on steep slopes and ensure they are properly compacted. To ensure better compaction of fill more than 60 cm thick, it is preferable to deposit several thin layers rather than a single layer. In zones with no transversal slope, the height and depth of the fill must be limited to 3 m in total. *Waste management* • Emphasize waste management practices in the following order: reduction at source, reuse, recycling, and conversion of waste. Replace hazardous products with less harmful ones if possible. The quantity of waste can be reduced at source by using up products completely, buying in bulk and accurately estimating required amounts. • Plan a storage site for use before and after processing large quantities of waste, particularly plastics, which are difficult to extinguish once they catch fire. • Comply with applicable regulations that prohibit the burning of waste. • Store waste temporarily in a single location inaccessible to wildlife, employees and the public. *Hazardous materials management*	in the project area. • Implement a seismograph for one year to assess vibration speed (peak particle velocity) during blasting. The blasting activity would be upgraded as needed, depending on results. • Hold meetings of the Health, Safety, and Environment Committee three to four times per year, to provide a forum with affected Indigenous communities to discuss and address as a group the health, safety and environmental matters relating to the Howse and DSO projects, and to assess the Project's effects and monitoring measures in place. • Make the information from Health, Safety, and Environment Committee meetings, including presentations and minutes, available electronically to committee members. Make the environmental information on the Project available on the Health, Safety, and Environment Committee shared drive. Work

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities

	• Comply with laws and regulations regarding the transportation of hazardous materials.
	• Clean up any spilled fuel before restarting engines.
	
	Drilling and blasting
	• Ensure that only properly qualified and trained personnel handle and detonate explosives as per the manufacturer's instructions and applicable laws and regulations.
	• Follow the manufacturer's instructions to ensure that blasting procedures are safe both for humans and the environment.
	• Take the necessary precautions to control dust emissions from drilling.
	• Fill borehole necks with clean crushed rock to eliminate dust and gas emissions during blasting.
	• Ensure that all containers, tanks, storage trailers and loading equipment receive regular maintenance from trained employees.
	• Use explosives in such a way as to minimize the scattering of blasting material outside the blasting site.
	
	Construction equipment
	• Ensure that only qualified personnel refuel and maintain equipment.
	• Ensure all construction equipment delivered to the site is in good working order, without leaks and equipped with all emissions filters required to comply with emissions regulations and reduce noise disturbance. The equipment must be inspected regularly to detect any leaks or mechanical defects that could lead to fuel, lubricant or hazardous material spills.
	• Ensure that all employees driving company vehicles hold a valid driving license. Personnel must attend an orientation and employee safety session and must
		with Health, Safety, and Environment Committee members to inform the community at-large of the salient points of the matters discussed.
		• Hold Agreement Implementation Committee meetings periodically and on an individual basis with each Indigenous group, to assess:
		  ○ Indigenous group employment levels and training carried out, and gender equity;
		  ○ Indigenous group contracting levels; and
		  ○ financial benefits flowing to the communities, as per its agreements.
		• Continue the Regional Steering Committee on Mining Issues to discuss and address issues faced by residents in the region as they relate to mining activities.
		• Ensure that Environment, Safety and Community Affairs personnel are present on-site, in the Schefferville region and can be reached seven days per week to

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	be familiar with the procedures in the event of a collision with an animal. • Limit road access to project personnel, unless with a mine escort. • Use low sulphur content fuels. • Ensure dust-control liquid complies with Newfoundland and Labrador regulations. *Mining operations* • Ensure that crushers, dryers, sieves, conveyors, elevators and hoppers do not generate airborne dust that is visible more than 2 m from the emission source. *Manage ore, waste rock, and overburden* • Prepare scenarios for using waste rock. For example, waste rock could be used to build roads and railways. • Characterize the physico-chemical parameters of the waste rock. • Control dust emissions from waste rock storage and handling. *Air quality control* • Use dust extractors with filter bags to control dust emissions at the Howse mini- plant dryers. • Recover dust from the dust extractor and dispose of it in a manner that prevents dust emissions. • Use a water-spraying system at conveyor transfer and drop points. • Mix the ore with water in the drum scrubber. • Limit dust emissions from drills by using a dust extractor. • Make reasonable efforts to spray roads, including the road between the DSO3 project complex and Schefferville, to reduce dust emissions when feasible and necessary.	assess and respond to community matters and/or concerns. • Monitor atmospheric air quality and, when the specific emitters are quantified and identified, propose effective reduction measures. Air quality would be monitored using a combination of standard reference and site-specific sampling methods as per Newfoundland and Labrador Guidelines for Ambient Air Monitoring. • Prepare an Ambient Air Monitoring Plan and submit to the provincial authorities for approval. Atmospheric air quality measurements include: total particulate matter, particulate matter less than 10 microns, particulate matter less than 2.5 microns, nitrogen dioxide, and metals. • Ensure the atmospheric air quality plan would consist of: ○ selecting sampling locations based on air modelling results and

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	Specific mitigation for air quality • Limit the number of vehicles travelling to and from Schefferville by requiring authorization for all vehicles leaving the Project site. • Require vehicles to use the wash bay at the DSO project complex before leaving the site between May and October. • Provide financial, technical, and administrative support to construct a vehicle wash bay at the entrance to the town of Schefferville for which all cars, trucks and buses would be required to use before entering the limits of the town to prevent nuisance dust. • Develop a plan for the prevention and management of blast generated nitrogen oxides. This plan would be based on the Code of Good Practice prepared by the Australian Explosives Industry and Safety Group Inc. • Apply various adaptive management strategies if monitoring results suggest the need for additional actions or if such strategies are deemed appropriate via other channels. There are three main channels through which it would be adaptively managed: ○ if air quality monitoring data frequently exceed assessment criteria; ○ if complaints are received; and ○ if staff observes issues. • Implement the following measures if air quality standard exceedances are observed: ○ activate the plan for the prevention and management of blast generated nitrogen dioxide; and ○ implement additional road watering for dust control. *Local employment and training*	identified sensitive receptors; ○ selecting appropriate sampling equipment and methods allowing for short-term (e.g., 1 hour), medium-term (24 hours) and long-term (monthly) monitoring of dust and NOx; ○ obtaining local meteorological information, such as wind speed, direction and temperature; ○ applying monitoring methods and equipment that can provide reliable, accurate and representative data, considering the climate in this region; and ○ ensuring that monitoring results are actionable and that corrective actions are applied promptly to minimize effects on air quality, if necessary.

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities

	• Ensure that local Indigenous residents (members of the Nation Innu Matimekush-Lac John and the Naskapi Nation of Kawawachikamach) with the qualifications and competencies required are given priority in employment opportunities by virtue of their proximity to the Project, while Newfoundland and Labrador residents and members of the three other Indigenous groups with the qualifications and competencies required are given subsequent priority in employment.
	• Ensure that Newfoundland and Labrador and Indigenous businesses are given the same priority, provided that they are technically competent and commercially competitive.
	• Update the existing DSO Project Newfoundland and Labrador Benefits Plan, Women's Employment Plan, and Impact and Benefit Agreement and Cooperation Agreement to include the Howse Project, for which approval by the responsible provincial or federal department would be obtained prior to the beginning of the construction.
	• Provide training, internship opportunities, and many opportunities for on-the-job training of all workers onsite.
	• Continue to support the essential skills training and other technical training according to job needs, via on-the-job training and institutional training, as per Impact and Benefit Agreements.
	• Provide mechanisms through which Indigenous workers may access qualified positions and obtain promotions.
	• Work with communities to support the delivery of early training in areas that would be required.
	• Offer an alternate schedule to local workers when operational schedules allow it.
	• Continue to address issues relating to project construction and operation,
		• Ensure blast records include the following information:
		  ○ location, date and time of the blast;
		  ○ dimensional sketch including photographs, if necessary, of the location of the blasting operation, and the nearest point of reception;
		  ○ type of material being blasted;
		  ○ prevailing meteorological conditions including wind speed in metres per second, wind direction, and air temperature;
		  ○ number of drill holes;
		  ○ pattern and pitch of drill holes;
		  ○ size of holes;
		  ○ weight of charge per delay; and
		  ○ number and time of delays.
		• Review blast designs continually with respect to ground vibration and overpressure. Blast designs

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	including employment, training and contracting, via each individual community Impact and Benefit Agreement Implementation Committee. • Continue to provide Cultural Awareness and Respectful Workplace training program for workers. • Ensure that all new employees have their beginner's handbook and appropriate health and safety training. • Continue to support Innu staff in improving their English skills on the job, given that the worksite is in Labrador and primarily English-speaking. English language courses would be offered onsite. • Continue to prioritize Indigenous and local contractors as much as possible. • Continue to adapt the bidding process to the size of some of the local businesses and where possible, divide big contracts into smaller ones. • Continue to provide support for the creation of local businesses. • Prepare a decommissioning and closure plan at least five years before the end of the Project to support the transition of workers to new employment, where possible. • Continue to provide cultural training for new enterprises (provided to all contractors hired by Tata Steel Minerals Canada). • Continue to provide start-up training for new business (in place, on an *ad hoc* basis). *Drilling and blasting* • Use all explosives in accordance with applicable laws, orders and regulations. • Use multiple detonators in bore holes as per the manufacturer's recommendations and optimize the arrangement of blasting holes to minimize misfires. • Prevent misfires by establishing time delay blasting cycles as per the explosives	shall be modified as required to ensure compliance with applicable guidelines and regulations. Decking, reduced hole diameters, and sequential blasting techniques would be used to ensure minimal explosives per initiated delay period. • Establish air monitoring stations for the entire DSO3 site (including Howse), the DSO4 site, and within the town of Schefferville, in cooperation with the government of Newfoundland and Labrador and local communities. • Conduct regular visual inspections for evidence of excessive dust or excessive emissions. • Conduct annual air emission reporting (National Pollutant Release Inventory federal program). • Implement an Ambient Air Quality Monitoring Plan. • Monitor air quality in the town of Schefferville and continue its air quality monitoring program at the workers' camp.

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities

	manufacturer's recommendations.
	• Use reliable triggering systems that allow for precise firing of the explosives.
	• Use blasting mats, if necessary, to prevent excessive scatter of rock.
	
	Construction equipment
	• Ensure equipment noise levels are equal to or less than those described in the environmental impact study.
	
	Mining operations
	• Ensure that the noise level of mining operations is no higher than 40 decibels at night and 45 decibels during the day at each receiver (Quebec Guidelines for Stationary Noise Sources for Type I Zoning Area).
	
	Specific mitigation measures for noise
	• Prepare a mitigation plan for drilling to be implemented if noise complaints are received. Example methods of reducing drill noise include:
	  ○ reduce drilling speed;
	  ○ reduce drilling time;
	  ○ use a noise shroud around the drill; and
	  ○ use a mobile noise screen.
	• Use a blast specialist to conduct a minimum of an initial four blasts to obtain site-specific data.
	• Limit the blast charge per delay to below 192 kg to protect fish and fish eggs against both vibration and overpressure.
	• Review blast design continually to ensure compliance with regulations.
	
	Specific mitigation for light
		• Monitor dust at strategic locations using a dust tracking system. Measure dust emissions during crew changes every two weeks at the crossing between the mine access road and the train station road. Perform dust readings at key locations in Schefferville to measure dust that is related to traffic as well as other construction activities in town. Conduct dust and metal analysis.
		• Make air quality monitoring data available online.
		• Contribute to a compensation fund (or funds) to assist with extra costs incurred by harvesters to access other areas for subsistence and traditional activities and to compensate for the additional travel time and cost associated with the bypass road.
		• Conduct a country food sampling program two years after commencement of the operation phase and subsequently every five years for the duration of the operation phase. Fish, waterfowl,

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
	• Shield outdoor lighting. • Use the light only when needed. • Shut off the lights when possible. • Use long wavelength light with a red or yellow tint to minimize effects. • Inform staff to turn off lights on top of trucks at night, when not necessary. • Use the minimum amount of pilot warning and obstruction avoidance lighting on tall structures. • Shield lighting for the safety of employees to shine down and only to where it is needed, without compromising safety. • Use light-emitting diode (LED) lights when possible.	berries, and mammals (when possible) would be monitored. • Monitor fish tissue for mercury if effluent monitoring yields a concentration of total mercury in the effluent that is equal or greater than 0.10 ug/L. • Report the results of the country food sampling program to the Health, Safety, and Environment Committee and to Health Canada. • Conduct a new human health risk assessment should increases of contaminants in country foods be detected and implement a targeted action plan (results-dependent). • Implement a noise complaint process. • Conduct air quality monitoring, including total suspended matter and associated chemistry to inform and update assumptions associated with direct (inhalation) and indirect (food quality, dust, soil) exposure pathways. • Establish a complaint procedure

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
		through the Health, Safety, and Environment Committee if concerns are expressed about effects of the project on country food quality and/or taste.
Transboundary Effects	*Specific mitigation measures* • Develop, prior to construction, and implement during all project phases, an engine maintenance program to control emissions from diesel equipment exhaust and vehicles used for the Project. • Limit the use of dryers in the mini-plant to reduce fuel consumption. • Construct the mini-plant near the rail loop to reduce the ore transport distance, which would reduce vehicle emissions. • Minimize vehicle idling.	• Continue to report greenhouse gas emissions through the National Pollutant Release Inventory on an annual basis as well as for the Government of Newfoundland and Labrador. In addition, finalize an action plan for the reduction of greenhouse gas following the acquisition of data on emissions from the Howse Project once the Howse plant is fully operational.
Species at Risk	*Little Brown Bat (Little Brown Myotis)* • Avoid accessing caves or inactive mines, especially during winter months (potential bat hibernation site). • Use decontamination practices known to be effective in destroying spores of the fungus which cause white-nose syndrome if a cave or old mine needs to be accessed.	• Perform a screening for rare plants prior to any work in a non-disturbed area. If a rare plant is discovered, the area would be isolated and specific measures to protect the species would be implemented. • Conduct wildlife surveys every five years on the proponent's/Tata Steel Minerals Canada's

Valued Component	Mitigation Measures	Monitoring and Follow-up Activities
		properties. • Report sightings of wildlife (Wolverine, Caribou, or Lynx, etc.) to the Health, Safety, and Environment Committee. Furthermore, monthly Tata Steel Minerals Canada Environmental reports would be made available to the Health, Safety, and Environment Committee members on the shared drive. • Monitor hunting and trapping success with the free, prior and informed consent of the local Indigenous groups every five years to ensure that there are no effects on the harvested mammals. • Monitor Bank Swallow annually.
Accidents and Malfunctions	• Ensure all contractors and staff that are present on the DSO Timmins site report all environmental incidents within 30 minutes to the onsite environmental representative. All clean-up is the responsibility of the party in question under the supervision of Tata Steel Minerals Canada Environment staff. A full report with all details of the incident is required within 24 hours of the incident's occurrence, with Tata Steel Minerals Canada Environment handling all government reporting requirements within the same timeframe. All complaints should be directed to Tata Steel Minerals Canada Environment under the same format to allow for timely resolution.	

Appendix D List of Key Mitigation Measures, Monitoring, and Follow-up Considered by the Agency

Valued Component	Mitigation Measures	Monitoring and follow-up activities
Fish and Fish Habitat (Section 7.1)	• Implement erosion and sedimentation control measures within the project area during all phases of the Project to avoid the deposit of deleterious substances in waters frequented by fish. • Collect all site water via a network of surface ditches and in-pit dewatering pumps and convey it to one of two sedimentation ponds to reduce total suspended solids prior to discharge into Goodream Creek. • Limit the blast charge per delay to below 1092 kg to protect fish and fish eggs against both vibration and overpressure. • Use a time delay blasting technique to minimize the effects of noise and ground vibration on spawning fish and fish eggs. • Develop and implement a communications plan with Indigenous groups to ensure they are regularly kept informed and can provide feedback on key issues related to potential effects of the Project on fish and fish habitat (see Section 7.4 for additional detail). • Manage waste rock acid generation during operation taking into account the Mine Environment Neutral Drainage Program's *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials*.	• Monitor water quality and quantity parameters as per the proposed framework the proponent committed to in its Water Management Plan (October 2015), including, but not limited to: ○ installing automated water level gauges on Triangle Lake, Morley Lake, Burnetta Lake, and Pinette Lake and a groundwater monitoring well in close proximity to both Triangle Lake and Pinette Lake to monitor surface and groundwater levels and to verify the prediction of no connectivity between groundwater and water bodies; ○ monitoring effluent quality, including iron concentrations, from the HowseA and Timmins4 sedimentation ponds and its effects on the receiving environment to determine the effectiveness of effluent mitigation measures, in accordance with the *Metal Mining Effluent Regulations* and requirements under Section 35 of the *Fisheries Act*, and in

Valued Component	Mitigation Measures	Monitoring and follow-up activities
		consideration of the *Canadian Council of Ministers of the Environment's Water Quality Guidelines for the Protection of Aquatic Life*; ○ installing a water quality monitoring station downstream of the HowseA sedimentation pond discharge point to measure for downstream seepage; and ○ installing water quality monitoring stations in Triangle Lake, Brunetta Creek, Brunetta Lake, and Pinetta Lake. • Update the hydrogeological model after each phase of mine pit development, based on the results of the monitoring program, to better predict the impact of the next pit phase on groundwater. • Monitor changes in fish and fish habitat down gradient of the Project, including in Triangle Lake, Burnetta Lake, Pinette Lake, and Goodream Creek.
Migratory Birds (Section 7.2)	• Carry out all phases of the Project in a manner that protects and avoids harming, killing, or disturbing migratory birds or destroying or taking their nests or eggs, including conducting clearing activities outside the breeding period of May 10 to August 10, when possible. In this regard, take into account Environment and Climate Change Canada's *Avoidance Guidelines*. The proponent's actions when taking into account the *Avoidance Guidelines* shall be in compliance with the *Migratory Birds Convention Act, 1994* and with the *Species at Risk Act*. • Restrict vehicles and heavy equipment from entering unaltered	• Conduct a wetland disturbance survey every five years for the life of the Project. • Install, prior to the start of construction, at least three groundwater monitoring wells that focus on the wetlands located north of the pit, as part of the monitoring program to ensure pit dewatering does not affect wetland

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	wetlands and ensure no vehicle, machinery and equipment cleaning, fueling and maintenance or storage of potentially harmful substances occurs within 20 metres of any wetland. • Limit blasting to an average of once per week during summer. • Control lighting required for the construction, operation and decommissioning of the Project including direction, timing, and intensity to avoid effects on migratory birds, while meeting health and safety requirements. • Survey the mine pit walls annually during the nesting period to determine if Bank Swallows are using the open pit as a nesting site. In addition, during the nesting period, undertake Bank Swallow surveys one to two days before conducting any work in a location within the project area where Bank Swallows may occur. Notify relevant authorities if Bank Swallows are found on site. Identify, in consultation with relevant authorities, and implement a setback distance in which no project activities shall take place around any surveyed nests. The setback distance shall be maintained until the young have permanently left the area of the nest. If Bank Swallows are found, implement additional measures to deter Bank Swallows from nesting in the area prior to next breeding period.	water levels. The wells are to be spaced 50 m apart and measurements taken every two weeks from the start of operations until dewatering has ended. • Develop and implement, in consultation with Indigenous groups and Environment and Climate Change Canada, a program to determine the effectiveness of all mitigation measures to avoid harm to migratory birds, their eggs and nests. As part of this program, conduct post-construction breeding bird surveys and species at risk surveys, similar to the pre-construction surveys, in the local study area every year for the first three years to verify the proponent's predictions. After three years, determine, in consultation with Indigenous groups and Environment and Climate Change Canada, the frequency of additional surveys based on the results of the follow-up program.
Physical or Cultural Heritage, and Historical or Archaeological Sites or Structures (Section 7.3)	• Refrain from blasting for up to 24 hours, if given 48 hours' notice and if requested by Indigenous groups, when Indigenous groups are using Kauteitnat. • As part of an overall plan for communications with Indigenous groups, announce weekly blasting schedules via local radio stations and ensure local band councils are notified of blasting schedules as far in advance as possible, but with a minimum 48 hours' notice (see Section 7.4 for details regarding the communications plan). • Limit blasting to no more than twice per week and no more than five times per month during the months of June, July, August, and	• Monitor noise levels at sensitive receptor sites nearby, including on Kauteitnat, and implement modified or additional mitigation measures if noise levels at these sites exceed 5 decibels above the background noise levels as a result of the Project, except during blasting.

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	September. • Design waste rock piles and overburden stockpiles using a qualified individual, and in consultation with relevant authorities and Indigenous groups and in consideration of reducing effects on viewscapes. • Refrain from undertaking any activities directly on Kauteitnat. • Implement a buffer zone between the foot of Kauteitnat and all mining infrastructure and activities, in which no mining activity would take place. Post signs identifying the buffer zone. • Restrict the blast charge per delay to below 1092 kg to reduce noise and vibration. • If complaints are received related to noise, implement corrective actions to reduce the effects from noise such as reducing drilling speed or using a noise shroud and mobile noise screen, or equivalent technology, around drills during operation. • Develop and implement a cultural heritage control plan. If an archaeological discovery is made, implement measures to ensure protection of the resources. • Conduct progressive rehabilitation of the project area during all phases of the Project and complete rehabilitation of the project area following the operation phase of the Project (see Section 7.5 for additional details). • Develop and implement a communications plan with Indigenous groups to ensure Indigenous groups are regularly kept informed and can provide feedback on key issues related to the Project (see Section 7.4 for additional details regarding the communications plan).	
Current Use of Lands and Resources for Traditional Purposes (Section 7.4)	• Ensure that the bypass road, which would allow traditional land users to circumvent the project area and access areas used for traditional activities (e.g., Pinette Lake, Kauteitnat, and the Howells River Valley), is maintained for the entire life of the Project and is provided without a requirement to wait at a security gate for a security escort. • Ensure that the bypass road not be used for transportation of ore or any other project activities besides routine upgrading and maintenance of	• Develop, in consultation with Indigenous groups, a follow-up program to verify the accuracy of the environmental assessment as it pertains to the effects of the Project on current use of lands and resources for traditional purposes and to determine the effectiveness of

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	the bypass road itself. • Upgrade, prior to the start of construction, and maintain, until the end of decommissioning, a route for users to bypass the DSO4 area (also referred to as the Kivivic and Goodwood mining sector) and restore access to preferred hunting grounds northwest of the Project. The chosen route shall not be used for transportation of ore or any other project activities, besides routine upgrading and maintenance of the bypass road itself. • Prohibit employees and contractors associated with the Project from fishing and hunting within the project area, unless an employee or a contractor is provided access by the proponent for traditional purposes or for exercising Aboriginal rights, to the extent that such access is safe. • Monitor caribou presence and movement around the Project, including gathering available information on the presence and movement of satellite-collared caribou and monitoring caribou within a 20 km radius of the Project. If caribou are observed within a 20 km radius of the Project, notify the Newfoundland and Labrador Department of Fisheries and Land Resources and undertake any recommended actions. • Develop and implement a communications plan with Indigenous groups to ensure Indigenous groups are regularly kept informed and can provide feedback on key issues related to the Project. The communication plan shall include procedures and practices for sharing information on the following: o Project activities requiring notification and the timing of these notifications. For blasting, the Proponent shall advertise blasting schedules via local radio stations and directly to Indigenous groups at a minimum 48 hours prior to each blasting event; o follow-up activities and monitoring results for traffic; air quality, including dust and dust deposition; country foods; water quality and quantity; fish and fish habitat; accidents, malfunctions, and unplanned events; traditional use activities; bird and nest surveys; and caribou movement; and	the mitigation measures outlined above. The Proponent shall implement the follow-up program in consultation with Indigenous groups. • Develop and implement, in consultation with Indigenous groups and the Province of Newfoundland and Labrador, a follow-up program to verify the accuracy of the environmental assessment as it pertains to the effects of the Project on caribou. As part of the follow-up program, the Proponent shall monitor caribou movement and develop and implement modified or additional mitigation measures if required, and in particular if the range of the George River Caribou Herd appears to be expanding and caribou are re-occupying areas around the Project.

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	○ temporary and permanent restrictions on access to traditional territories, including the location and timing of restrictions and the availability of alternate routes, and the timing of maintenance activities for the bypass roads. • The communications plan shall also include ways for Indigenous groups to provide feedback to the proponent about adverse environmental effects caused by the Project and procedures and practices for the Proponent to document and respond in a timely manner to the feedback received and demonstrate how issues have been addressed. • The proponent can consider, in consultation with Indigenous groups, adapting the existing Health, Safety and Environment Committee as a means to implement the communications plan.	
Health and Socio-economic Conditions of Indigenous Peoples (Section 7.5)	• Implement the following measures to mitigate dust generation and effects from fugitive dust: ○ Designing waste rock piles and overburden stockpiles using a qualified individual and in consultation with relevant authorities and Indigenous groups. ○ Implement progressive rehabilitation to progressively return any physically disturbed areas to a state as close to the baseline as possible, as soon after the disturbance as practical, including: ▪ re-vegetate areas disturbed during construction, but which are no longer required for operation; and establish the waste rock piles' and overburden stockpiles' final surface area early and stabilize, compact, and re-vegetate waste rock piles and overburden stockpiles, or portions of the piles, that are no longer being actively used or managed. ○ Spray dust suppressant along the Howse haul road during all phases of the Project to control the release of dust. ○ Transport ore on the Howse haul road in covered trucks. ○ Implement dust control measures at the conveyor transfer and	• Monitor air quality at sensitive receptors by using mobile monitoring equipment and by using standard reference and site-specific sampling methods. • Monitor dust and dustfall at strategic locations around the project area and DSO project complex, as well as within the Town of Schefferville and Kawawachikamach as appropriate, using a dust tracking system and mobile monitoring equipment. Analyze dust to determine metal content and concentration of other potential contaminants of concern. If monitoring indicates that effects are greater than predicted, or if dust generation from the Project is linked to a decrease in traditional activities, implement modified or additional mitigation measures, including:

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	drop points when the conveyor is active, in the drum scrubber when ore is mixed, and at the crude ore recovery tunnel, the secondary crusher and the dryer during ore processing activities. ○ Fill borehole necks with clean crushed rock to eliminate dust and gas emissions during blasting. ○ Limit the number of vehicles travelling between Schefferville and the project area by using shuttle buses to transport workers and other merchandise to and from the project area instead of smaller vehicles. ○ Develop, in consultation with Indigenous groups and relevant authorities, and implement a dust management strategy to control dust generated by vehicles associated with the Project. This dust management strategy could include the proponent's commitment to wash vehicles prior to leaving the DSO project complex and before entering the Town of Schefferville and to spray dust suppressants along the road between the Project and the Town of Schefferville. • Develop and implement a communications plan with Indigenous groups to ensure they are regularly kept informed and can provide feedback on key issues related to the Project (see Section 7.4 for additional details).	○ adaptation of blast designs; ○ enclosing the Howse mini-plant inside a ventilated building; ○ increasing the frequency of road spraying; ○ spraying waste rock piles and overburden stockpiles during dry periods; and ○ constructing wind-breaks. • Conduct a country food sampling program two years after the commencement of the operations phase and continue sampling for a frequency and duration determined in consultation with Indigenous groups and relevant authorities. Monitor fish, waterfowl, berries, and mammals. Sampling would be conducted in areas where Indigenous groups harvest country foods which may be affected by the Project, and would include monitoring for heavy metals such as mercury, and other potential contaminants of concern.
Accidents and Malfunctions (Section 8.1)	• Prior to construction and in consultation with Indigenous groups and relevant authorities, develop an emergency response plan. The plan shall include response plans for slope failures, sedimentation pond failures, ditch failures, and destabilization of waste rock piles and overburden stockpiles or rock slides, in addition to all other emergency scenarios identified in the EIS. • Notify Indigenous groups and local-area stakeholders of any accidental event or malfunction which results in an environmental effect. This	• The Agency has not identified any follow-up requirements specific to accidents and malfunctions.

Valued Component	Mitigation Measures	Monitoring and follow-up activities
	would include notifying Indigenous groups and local-area stakeholders of any release of effluent beyond permit requirements, malfunction of any of the safety berms or retention ditches, or any other accidental release of a potential substance of concern into the environment.	
Cumulative Environmental Effects (Section 8.4)	• The proponent shall participate in any regional initiative(s) if requested by a relevant authority relating to the monitoring and management of cumulative environmental effects likely to result from the Project in combination with other activities, including cumulative health effects and/or effects related to dust generation.	• The Agency has not identified any follow-up requirements specific to cumulative environmental effects.

Appendix E Proponent's Assessment of Alternative Means of Carrying out the Project

Project Component/Alternative Mean	Description	Key Considerations Including Potential Adverse Effects	Preferred Alternative
Mine Production Rates			
Alternative 1: Production rates set so that the Project has the same timeline as DSO3 (supporting infrastructure)	• The annual mine production rates for the Howse Project would be 3.04 megatonnes (2018-2022), 9.13 megatonnes (2023-2031), and 5.22 megatonnes (2032), which would align production and mining activities with the DSO3 project.	*Pros:* • Sharing of infrastructure and personnel would lower costs and improve efficiency across both projects. • The Project's environmental effects would be reduced as the disturbances in the area are limited to the same timeframe as the DSO project. *Cons:* • Longer project timeline.	✓
Alternative 2: Production rates higher than DSO3	• Higher production rates required for the Project to achieve a shortened timeline, but would not be aligned with the DSO3 project.	*Pros:* • Shorter project timeline. *Cons:* • Increased vehicle congestion in the area would increase emissions and dust generation and lead to less efficient mining. • Larger equipment would not be a viable option to increase production due to stability concerns with the larger excavators.	
Pit Methods			
Alternative 1: Conventional pit method	• All waste piles would be outside the pit. • Waste pile heights would be between 720-740 m and would represent a combined footprint of more than 130 hectares. • The waste rock pile would be approximately 66 hectares.	*Pros:* • None identified *Cons:* • The waste dumps would be approximately 27 hectares larger than for alternative 2. • Larger waste piles would deplete landscape	

Project Component/Alternative Mean	Description	Key Considerations Including Potential Adverse Effects	Preferred Alternative
		aesthetic and increase the project footprint. • Would require a corresponding system to capture runoff. • More effort and time would be needed to accomplish complete rehabilitation of the site. • Would require longer travel distances and increased traffic to transport waste material away from the pit, which would be more costly, impact air quality, increase greenhouse gas emissions, increase dust and noise, and increase the possibility of accidents.	
Alternative 2: Mixed conventional and in-pit method	• A large portion of the waste material would be accumulated inside the mined portion of the pit, and the remainder would be accumulated in nearby waste piles. • Out-of-pit waste pile heights would be between 60-70 m and would represent a combined footprint of approximately 100 hectares. • The waste rock pile would be approximately 39 hectares.	*Pros:* • Though the pit would be six hectares larger than under conventional pit method, this method would result in a smaller waste dump footprint and project footprint. • Would reduce several of the anticipated effects associated with the conventional pit method. • Reduction of the size of waste dumps and corresponding environmental effects would likely be preferred by Indigenous groups. • Costs an estimated $2.5 million less than the conventional pit method. *Cons:* • Would necessitate additional coordination and waste material location management.	✓
Power Supply			
Alternative 1: Generators	• Use of diesel generators.	*Pros:* • Easy to achieve logistically and economically.	✓

Project Component/Alternative Mean	Description	Key Considerations Including Potential Adverse Effects	Preferred Alternative
		Cons: • May have negative effects on air quality and increase greenhouse gas emissions. • Worst case modelling exercise yields predicted emissions of 19 005 247 l/year.	
Alternative 2: Power grid connection	• Connection of the power grid from the DSO project complex to the Howse mini-plant.	*Pros:* • Reduction of greenhouse gas and other emissions associated with the Project. *Cons:* • There is insufficient power supply in the grid to meet the Project's needs, thereby making this alternative unfeasible. • Higher financial and logistical costs required to extend the existing power grid. • Mobile diesel powered lighting would still be required.	
Bypass Road Locations			
Alternative 1: North Road – Greenbush	• This road already exists in its entirety. • Road connects to the Timmins-Kivivik bypass road via the Greenbush crossing to Triangle Lake, then to the Howells River and Pinette Lake. • This alternative is approximately 16 km longer than alternative 2.	*Pros:* • Lower construction costs, as it would involve upgrading an existing road. *Cons:* • Would require a longer commute for local people to access the land and may result in more vehicle accidents and noise. • Would result in increased effects on air quality and wildlife due to increased vehicle travel time and distance. • It is estimated to cost $176,480 annually to maintain the section of road that is unique to this option.	✓
Alternative 2: North Road – Triangle Lake	• This road connects to the Timmins-Kivivik bypass road between Morley Lake and Goodream Lake, via a new	*Pros:* • This shorter route would likely be preferred	

Project Component/Alternative Mean	Description	Key Considerations Including Potential Adverse Effects	Preferred Alternative
	crossing. • Would involve the construction of approximately 1.3 km of new road.	by land users. • It is estimated that it would cost $14,339 annually to maintain the section of road that is unique to this option. *Cons:* • New section of road would require clearing and may cross wetlands, and would have to cross two streams, affecting the terrestrial environment, water quality, wetlands, and fish habitat. • Construction activities would cause noise which may have an effect on wildlife. • Higher construction costs, as it would involve clearing and construction of a new road. • New road construction poses logistical constraints and requires that the proponent arrange for the safe crossing of the DSO haul road by land users.	
Waste Rock Pile Locations			
Alternative 1: Above and below haul road (82 hectares)	• Waste rock piles would be located above and below the Howse haul road. • The largest waste rock pile (furthest above the Howse pit) would occupy a naturally sloped area. • Partial co-location of rock pile within the Lake Pinette watershed. • Out-of-pit footprint would be 82 hectares.	*Pros:* • Would likely be less aesthetically impactful than the other two alternatives. *Cons:* • Largest footprint, and would disturb the most habitat, including wetlands. • Would require the longest travel routes for trucks (more than 2 km from the Howse pit). • Could affect water quality and associated fish habitat and Indigenous Group's use at Pinette Lake.	
Alternative 2: Mixed in-pit and above haul road (39 hectares)	• Two waste rock pile locations, one above the Howse haul road and the other within the Howse pit. • Out-of-pit footprint would be 39 hectares.	*Pros:* • No waste rock piles would be located in the Pinette Lake watershed. • Smallest footprint, reduced habitat	✓

Project Component/Alternative Mean	Description	Key Considerations Including Potential Adverse Effects	Preferred Alternative
		disturbance. *Cons:* • Would encroach on wetlands, but to a slightly lesser extent as compared to the other two alternatives.	
Alternative 3: Above and below haul road (71 hectares)	• Three waste rock piles would be located above and below the Howse haul road. • Two of the three proposed sites would be in the Pinette Lake watershed, with one site being within 300 m of Pinette Lake. • Out-of-pit footprint would be 71 hectares.	*Pros:* • *None identified* *Cons:* • Effects on Pinette Lake could impact fish and Indigenous groups' land use. • Bypass road would be very close.	
Crushing and Screening Facility Location			
Alternative 1: Near Howse Pit	• Locate crushing and screening equipment near the Howse pit. • Would require 1.5 hectares of clearing, likely within wetlands. • Would require additional generators to be placed at the site.	*Pros:* • Reduced transportation activities and associated effects. *Cons:* • Clearing of lands would increase effects on habitat and wildlife compared to alternative 2. • Additional generators would be a source of emissions and noise at the project site.	
Alternative 2: DSO Project Complex	• Locate crushing and screening equipment near the DSO rail facility. • Land is already cleared for existing mining operations. • Could enable use of DSO power supply and generators.	*Pros:* • Location has already undergone heavy industrial use, and the addition of the processing equipment would not create new environmental effects on the landscape. • Reduced requirement for generators. • Would result in an overall reduction of noise compared to alternative 2.	✓

Project Component/Alternative Mean	Description	Key Considerations Including Potential Adverse Effects	Preferred Alternative
		• Would be logistically simpler to have processing taking place at one site, and would reduce loading and unloading activities. *Cons:* • Increased transportation activities and associated effects.	
Water Treatment (suspended solids)			
Alternative 1: Use of sedimentation ponds exclusively	• Use of sedimentation ponds to allow sediment to settle for a known period of time prior to discharge. • No coagulants would be added.	*Pros:* • Least costly and logistically complex alternative. • Based on water quality at existing sites, use of sedimentation ponds exclusively is likely sufficient to meet requirements. *Cons:* • Footprint of new sedimentation pond would be larger.	✓
Alternative 2: Addition of inorganic coagulants to sedimentation ponds	• Coagulant would be added to water at the entrance of the sedimentation ponds with manual dosing pumps. Natural turbulence would mix the water and coagulant. • The inorganic coagulant could be aluminum sulfate, iron salts or lime. The treatment chemicals would help destabilize the fine particles and help them co-precipitate out with the floc formed by the addition of a coagulant.	*Pros:* • Footprint of new sedimentation pond would be smaller than if no inorganic coagulants were used. *Cons:* • Use of coagulant would increase costs and logistical complexities.	
Alternative 3: Use of anionic flocculent	• An organic polyamide cationic flocculent could also be used to destabilize the fine iron oxide particles. An anionic flocculent could be added to enhance the settling rate of the coagulated particles if required.	*Pros:* • Footprint of new sedimentation pond would be smaller than if no anionic flocculent was used.	

Project Component/Alternative Mean	Description	Key Considerations Including Potential Adverse Effects	Preferred Alternative
		Cons: • Use of anionic flocculent would increase costs and logistical complexities.	
Water Management Plan			

Alternative 1: Water discharged into Goodream Creek; some infrastructure in Pinette Lake watershed	• Part of the water management plan infrastructure would be within the Pinette Lake watershed.
	• Runoff water from infrastructure located in the Pinette Lake watershed would be pumped or diverted to the existing Timmins 4 sedimentation pond. Water from all other infrastructure, including runoff and dewatering from the pit, would be discharged to Goodream Creek.
	• Changes to watersheds:
	  ○ +100 hectares to Goodream Creek;
	  ○ -40 hectares to Burnetta Creek;
	  ○ -61 hectares to Pinette Lake.
		Pros:
		• Costing and footprint for water management plan infrastructure is comparable to other options.
		
		Cons:
		• Would result in significant watershed area changes to all three watersheds.
		• Fisheries and Oceans Canada and Indigenous groups expressed concerns over this plan.	

Alternative 2: Water discharged into Goodream Creek and Burnetta Creek; some infrastructure in Pinette Lake watershed	• Part of the water management plan infrastructure would be within the Pinette Lake watershed.
	• Runoff water from infrastructure located in the Pinette Lake watershed would be pumped to the existing Timmins 4 sedimentation pond. Water from remaining infrastructure, including runoff and dewatering from the pit, would be discharged to both Goodream Creek and Burnetta Creek.
	• Changes to watersheds:
	  ○ +22 hectares to Goodream Creek;
	  ○ +39 hectares to Burnetta Creek;
	  ○ -61 hectares to Pinette Lake.
		Pros:
		• Water allocation would be better split between the Burnetta and Goodream watersheds than alternative 1.
		• Costing and footprint for water management plan infrastructure is comparable to other options.
		
		Cons:
		• None identified	

Alternative 3: Water discharged to Goodream Creek; minimal infrastructure in Pinette Lake watershed	• Limited water management plan infrastructure would be within the Pinette Lake watershed. • Natural runoff from Kauteitnat would be collected by a ditch located northwest of the pit, before reaching the mine site, collected in a dissipation pool, and re-directed into Burnetta Creek.	*Pros:* • Would result in the least effects (i.e. minimum changes in water balance) on Pinette Lake, which was of concern to Indigenous groups. • Any Triangle Lake drawdown effects would be	✓

Project Component/Alternative Mean	Description	Key Considerations Including Potential Adverse Effects	Preferred Alternative

	• Water from remaining infrastructure, including runoff and dewatering from the pit, would be discharged to Goodream Creek.
	• Changes to watersheds:
	  ○ +57 hectares to Goodream Creek;
	  ○ -42 hectares to Burnetta Creek;
	  ○ -12 hectares to Pinette Lake.
		countered by larger volume discharged to Goodream Creek.
		• Water management plan infrastructure costing and footprint is comparable to other options.
		• Changes to Goodream Creek watershed would be less than alternative 1.
		
		Cons:
		• None identified	

Appendix F Indigenous Consultation Summary

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
Overarching Concerns			
Innu Nation, Naskapi Nation of Kawawachikamach	Concerns regarding methods used to collect Aboriginal Traditional Knowledge and how it was used to describe environmental effects in the EIS. Recommend that the proponent provide updated land-use information on a regular basis during the life of the Project as part of the follow-up program requirements.	The proponent stated that several means were used to obtain and incorporate Aboriginal Traditional Knowledge in the EA and to reflect the concerns of Indigenous groups in its analysis, including the following: • reviewed land use studies conducted in 2009 for the Direct Shipping Ore 1 and 2 projects; • hired Innu experts to work with local Aboriginal Traditional Knowledge holders in the collection of information; • included an Aboriginal Traditional Knowledge sub-section in the description of each component in the EIS; and • completed an assessment on potential impacts to land-use activities from the Project, as well as a country food survey. This included information provided by elders and land-users, which confirmed that the preferred harvesting activities and locations would not be affected by the Project. Project effects on access to these areas would be mitigated through the completion of a bypass road.	The Agency requested additional information which required the proponent to provide a revised effects assessment, conclusions and mitigation measures informed by Aboriginal Traditional Knowledge. The Agency is satisfied with the proponent's updates to its effects assessment and conclusions based on the completed Aboriginal Traditional Knowledge studies and database searches. The Agency is proposing conditions that would require the proponent to develop, in consultation with Indigenous groups, a follow-up program to verify the accuracy of the EA as it pertains to the adverse effects of the Project on the current use of lands and resources for traditional purposes. The proponent would also be required to communicate the results of follow-up activities, including country foods monitoring, air quality monitoring, and caribou monitoring, to Indigenous groups.

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
Innu Nation, Naskapi Nation of Kawawachikamach	Concerns that the proponent has not fully considered alternative means of undertaking many aspects of the project design and planning, particularly for avoiding high valued wetlands and alternative options for the deposition of waste rock (e.g., use other nearby open pits to dispose of waste rock to reduce the project footprint and help remediate other sites).	The proponent stated that it undertook an analysis of alternative means of carrying out the Project, which included technical, economic, and environmental considerations, as well as potential impacts to Indigenous groups. The proponent stated that an optimized project design would already greatly reduce the project footprint within wetlands by avoiding disturbance at the northern section of the site which is located at a lower elevation. Use of other pits to dispose of waste rock would not be technically or economically feasible, or it would present separate environmental challenges.	The Agency is satisfied with the proponent's alternative means assessment for the Project, which included alternatives for pit development, power supply, bypass road locations, dump locations, crushing and screening facility locations, wood waste management, water treatment and water management.
Nation Innu Matimekush-Lac John, Innu Nation, Naskapi Nation of Kawawachikamach	Concern regarding compliance and follow-up monitoring, including how results would be communicated and updates provided to the community. Issues regarding the effectiveness of the Health, Safety and Environment Committee as the mechanism to communicate with and address issues raised by Indigenous groups.	The proponent stated that its compliance and follow-up programs would include various communication and socio-economic monitoring provisions and mechanisms to work collaboratively with affected Indigenous communities. Furthermore, the proponent indicated that the Health, Safety and Environment Committee would meet three to four times per year and would provide a forum for the proponent and	In addition to the mitigation measures and follow-up program measures stipulated by the proponent, the Agency is proposing the following potential conditions: • develop and implement, in consultation with Indigenous groups, a follow-up program to verify the accuracy of the EA as it pertains to the adverse effects of the Project on the current use of lands and resources for traditional purposes;

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		Indigenous communities to: • discuss and address any concerns related to health, safety or environmental matters relating to the Project; • collaborate to assess the effectiveness of mitigation measures; and • share information on the committee's shared drive.	• develop, in consultation with Indigenous groups, a communication plan to share information related to the Project with Indigenous groups. The communication plan shall include procedures, including timing, for sharing information; and • as part of the communication plan, develop and implement procedures for Indigenous groups to provide feedback about the Project and its environmental effects and for the proponent to respond to and resolve any issues that are raised.
Nation Innu Matimekush-Lac John	Concern regarding potential effects to multiple watersheds in the area. The water management plan includes two discharge points, one into Goodream Creek and the other into Burnetta Creek, and thus affects the Project's two subwatersheds.	In response to concerns raised during the review of the EIS about possible drawdown in Triangle lake, the proponent proposed further modifications to the water management plan. The modified plan would involve construction of a single new sedimentation pond, which would collect the site run-off and pit dewatering water, as well as construction of a drainage ditch which would intercept surface water from Kauteitnat before it reaches the pit and redirect it to a dissipation pool for release into Burnetta Creek. Site runoff and pit water would now be discharged into Goodream Creek only.	The Agency sought the advice of Natural Resource Canada related to the potential hydraulic connectivity between groundwater and Triangle Lake, and because of concerns raised by Natural Resources Canada, the proponent proposed a modified water management plan that would involve discharging all site run-off and pit water into Goodream Creek. The plan would also involve monitoring water levels in Triangle Lake and other potentially affected water bodies. Natural Resources Canada was satisfied with the proponent's revised water management plan.

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		Fish and Fish Habitat	
Naskapi Nation of Kawawachikamach	Concern about the project effects to fish and fish habitat caused by degraded water quality. In particular, the effects to fish health from surface water contaminated with mercury and consequential human consumption. Recommended that the proponent monitor mercury in fish tissue as well as install a water quality monitoring station near Howells River, close to a community fishing ground.	The proponent stated that fish tissue quality, and the potential associated health risk from its consumption, would not change because the Project's water discharges would be managed to comply with water quality standards. Fish tissue monitoring for mercury would occur as per the *Metal Mining Effluent Regulations*. The proponent indicated that Howells River is too far downstream and as a result, no effects are expected. Monitoring would occur further upstream in Goodream Creek, Triangle Lake, and Burnetta Lake.	The Agency requested additional information regarding mitigation measures for effects on fish and fish habitat. The Agency also sought the advice of Fisheries and Oceans Canada. The proponent would be required to comply with the *Metal Mining Effluent Regulations* regarding the management of effluent discharges from the Project, which includes monitoring for mercury in fish tissue. Furthermore, the Agency is proposing conditions that would require the proponent to consult with Indigenous groups and relevant authorities in the development and implementation of a follow-up program which would be designed to verify the accuracy and effectiveness of the mitigation measures pertaining to fish and fish habitat. In conjunction with this follow-up program, the Agency is also proposing a condition that would require the proponent to conduct a country foods sampling program, which would include sampling fish tissue, and share these results with Indigenous groups.
Naskapi Nation of Kawawachikamach	Concern about the reliance on sedimentation ponds as the	The proponent indicated that information on water quality at adjacent	The Agency sought the advice of Environment and Climate Change

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
	sole mechanism to treat site water. Requested more information on the response protocol and corrective measures that would be applied in the event that contaminants and metals are detected in the discharge water.	project sites indicates that suspended solids would be the only parameter of concern and that treating the water using sedimentation ponds, without the addition of coagulants, would be sufficient to meet regulatory requirements. Nevertheless, water quality and effluent would be monitored, as required by the *Metal Mining Effluent Regulations*. Water quality data would be reviewed and compared to required discharge criteria. If these criteria are not met, an assessment would be made whether to add a chemical dosing system as a contingency measure to further treat the surface runoff from the Howse mine site. If oil or hydrocarbons are present in run-off water, an oil/water separator would be used to remove these contaminants before the water is pumped to the sedimentation pond. For ammonia and nitrate, implementation of proper explosive management measures is the primary step that would reduce the potential for these contaminants to be present in water.	Canada who confirmed that the proponent must comply with the *Metal Mining Effluent Regulations* and subsection 36(3) of the *Fisheries Act* regarding the deposit of effluent from the Project in water frequented by fish. In doing so, the proponent shall: • collect and treat site runoff and pit dewatering water for total suspended solids prior to discharge into Goodream Creek; and • implement erosion and sedimentation control measures during all phases of the Project. Furthermore, the Agency is proposing conditions that would require the proponent to develop, prior to construction and in consultation with Indigenous groups and relevant authorities, and implement, from the start of construction to the end of decommissioning, a follow-up program to verify the accuracy of the environmental assessment as it pertains to fish and fish habitat and to determine the effectiveness of mitigation measures. The follow-up program would include effluent monitoring, including iron concentrations, water quality, and quantity monitoring in nearby waterbodies, and fish and fish habitat

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		If these mitigation approaches are not sufficient, an evaluation of the impact to the receiving streams would be conducted. If a treatment system is required to further attenuate these parameters, a more detailed study would be conducted to evaluate the best treatment option for the site.	monitoring.
Naskapi Nation of Kawawachikamach	Concerns about the effects of explosives to fish eggs and fish from vibration and overpressure, particularly in Pinette Lake and Goodream Creek. Requested that the explosive charges be reduced to 4500 kilograms between August and January and to 29 000 kilograms for the rest of the year, to prevent egg and fish mortality in Pinette Lake. Requested that monitoring and reporting on fish egg mortality be established.	The proponent stated that to minimize the effects of noise and ground vibration during blasting, a technique using inter-hole or inter-delay between blasts would be used. In this method, a single hole (or a series of holes) having a total explosive charge below the maximum designated charge is fired at one shot and the successive shots are fired with some millisecond delays. Furthermore, the proponent stated that it would limit the blasting charge per delay to 1092 kg, which would protect fish and fish eggs from vibration and overpressure in the nearest fish-bearing watercourses.	In addition to, and in consideration of the mitigation measures committed to by the proponent, the Agency is proposing potential conditions related to blasting and protection of fish and fish eggs that include the following: • use a time-delay blasting technique; • ensure the blast charge per delay shall not be greater than 1092 kg; and • monitor fish and fish habitat in Triangle Lake, Burnetta Lake, Pinette Lake and Goodream Creek.
Nation Innu Matimekush-Lac John, Naskapi Nation of Kawawachikamach	Concern over the direct and indirect loss of fish habitat, in particular in Burnetta Creek, Pinette Lake, and Goodream Creek, caused by the project footprint and effects to surface water quality and quantity.	The proponent indicated that there would be no direct loss to fish habitat as a result of the Project. The proponent did predict potential indirect effects on water quality from potential elevated levels of suspended	In addition to the mitigation measures prescribed by the proponent with respect to potential effects of the Project on fish habitat, the Agency is proposing conditions that would require the proponent to: • implement measures to protect

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		solids which may affect fish habitat in Goodream Creek, especially during spring thaw, if sedimentation ponds overflowed. However, the proponent does not believe these effects would be significant. Furthermore, the proponent committed to a water quality monitoring program that would be integrated into the existing monitoring program for the DSO project complex. The proponent also committed to monitor changes in the aquatic fauna down gradient of the Project, in accordance with the *Metal Mining Effluent Regulations* under the *Fisheries Act*. With regard to effects of fish habitat from potential decreases in water quantity, the proponent predicted that effluent discharges would increase water levels in Goodream Creek. The proponent also predicted that Pinette Lake and Triangle Lake, into which Goodream Creek flows, are disconnected from groundwater and would not experience drawdown during pit dewatering. However, a follow-up monitoring program would be implemented to confirm these predictions. Levels in these lakes could be supplemented if drawdown occurs.	fish and fish habitat when undertaking construction activities near water bodies, consistent with Fisheries and Oceans Canada guidance and in consultation with Fisheries and Oceans Canada; • collect and treat runoff water from project infrastructure in the sedimentation ponds prior to release into the environment to ensure that the water released meets criteria outlined in the *Metal Mining Effluent Regulations*; and • monitor water quality and quantity, as well as fish and fish habitat, and implement modified or additional mitigation measures if required.

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		Migratory Birds	
Innu Nation, Naskapi Nation of Kawawachikamach	Concern over the impact of the Project on migratory birds, in particular from vegetation stripping and sensory disturbance (i.e. noise and light).	The proponent indicated that the Project would result in a small loss and alteration of migratory habitat. The proponent committed to the following mitigation measures to reduce the effects of habitat loss and sensory disturbances from the Project on migratory birds: • when possible, conduct vegetation clearing outside of migratory bird nesting periods, and conduct vegetation clearing in accordance with Environment and Climate Change Canada's guidance; • conduct nest surveys after vegetation clearing, but prior to construction activities, in the event that new nests were built between these project activities; • create buffer zones around any nests found to be still occupied during nest surveys; • conduct blasting such that the air pressure measured at receptors is less than 128 decibels, which would reduce the disturbance on birds; • limit blasting during the operation phase to approximately once per week during the summer; and • use direct, focused artificial light at controlled levels and only where	The Agency agrees with the proponent's assessment of the project's effects on migratory bird habitat, and notes that Environment and Climate Change Canada also reviewed and was satisfied with this assessment. In addition to and in conjunction with the measures proposed by the proponent, the Agency is proposing conditions that would require the proponent to: • carry out the Project in a manner that protects migratory birds, in accordance with Environment and Climate Change Canada guidelines, and ensure all actions are in compliance with the *Migratory Birds Convention Act, 1994*; • conduct targeted mitigation to reduce any potential impact on Bank Swallow; and • conduct migratory bird and wetland surveys.

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		necessary for worker safety.	
Innu Nation	Concern over direct loss of wetlands from the project footprint and drawdown effects to wetlands from pit dewatering, with resulting effects to migratory birds that depend on wetland habitat. Requested that the proponent provide a compensation plan for the loss of wetlands resulting from the Project.	The proponent indicated that the project footprint could cause the loss or alteration of 11.5 hectares of wetlands, which translates to 3.5% of the wetlands in the local study area (331.7 hectares) and 0.5% of the wetlands in the regional study area (2243.2 hectares). The proponent concluded that no unique bird habitats critical for the survival of any bird species were found in the project area. The proponent would ensure all necessary approvals are obtained for any work within a wetland, restrict vehicles from entering any undisturbed wetlands, and maintain a minimum 20 m wide buffer strip along watercourses and waterbodies, in compliance with the Newfoundland and Labrador *Forestry Act*. The proponent committed to inspecting wetlands annually to ensure its predictions are accurate. The proponent also committed to conducting a wetland disturbance survey every five years and would install groundwater monitoring wells near wetlands, prior to the beginning of construction, to ensure pit dewatering does not affect wetland water levels.	The Agency is proposing potential conditions related to wetland and migratory bird habitat, which were informed by advice from Environment and Climate Change Canada, that would require the proponent to: • carry out the Project in a manner that protects migratory birds, in accordance with Environment and Climate Change Canada guidelines, and ensure all actions are in compliance with the *Migratory Birds Convention Act, 1994*; • prohibit vehicles and heavy equipment from entering wetlands that would not otherwise be affected by the Project; • not undertake vehicle, machinery and equipment cleaning, fueling and maintenance or store substances with potential to cause harm within 20 m of any wetlands; and • conduct wetland surveys and monitor groundwater levels associated with wetlands.

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		The proponent also stated that it would restore the project area to pre-project conditions during the decommissioning and reclamation phase.	
Physical or Cultural Heritage, and Historical or Archaeological Sites			
Naskapi Nation of Kawawachikamach, Nation Innu Matimekush-Lac John	Concern about the effects of the Project on access and use of Kauteitinat, a sacred cultural symbol and site for the Innu and an observatory point for caribou. Recommended that the proponent examine alternatives to the Project location, including identifying comparable deposits and how these sites would or would not meet the objectives of maintaining jobs and optimizing existing infrastructure.	The proponent examined alternatives to the Project itself, specifically whether other deposits in the region could be mined instead. The proponent determined that no deposits of similar quality and quantity are nearby which could also benefit from the close proximity to existing facilities. Therefore, there are no alternatives to the Project that would realize the goals and benefits described above, given the existing markets for iron ore. The proponent assessed the Projects effects on Kauteitnat and developed a number of mitigation measures (discussed two rows down).	The Agency notes that Kauteitnat is a unique feature and observatory point for caribou (during times when caribou populations have used the area) for both the Innu of Nation Innu Matimekush-Lac John and the Naksapi of Kawawachikamach. Kauteitnat is also an important cultural landscape feature with special meaning as a sacred and spiritual place. The Agency is proposing conditions that would require the proponent to: • refrain from blasting for a period of 24 hours, if requested by Indigenous groups 48 hours prior to their planned use of Kauteitnat, or less if Indigenous groups are no longer using Kauteitnat; • restrict project activities within an exclusion zone of 500 m from the foot of Kauteitnat. Further, the proponent would be required to clearly identify the exclusion zone with signage posted at the edge of the exclusion zone; and • provide alternative access to

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
			facilitate access to Kauteitnat throughout the life of the Project. The Agency also notes that the proponent committed to rehabilitating the site, as feasible, which would diminish the long-term effects on Kauteitnat. In addition, many effects associated with the Project would cease upon closure and decommissioning.
Naskapi Nation of Kawawachikamach	Concerned that the Project could disturb archaeological sites or artifacts and Indigenous sites from contemporary periods.	The proponent stated that it conducted historic resource assessments for the Howse property, and no archaeological sites or artifacts were identified. However, the proponent committed to implementing a cultural heritage control plan to protect any cultural heritage resources that could be directly affected by construction activities. Should a discovery be made during any phase of the Project, the proper means would be taken to protect such resources.	The Agency acknowledges the concerns raised by the Naskapi Nation of Kawawachikamach and has proposed as a potential condition that prior to construction, the proponent would be required to develop, in consultation with Indigenous groups and the Government of Newfoundland and Labrador, a cultural heritage control plan that would be implemented during all phases of the Project. If any previously unidentified structures, sites or things of historical, archaeological, paleontological or architectural significance are discovered within the project area by the proponent or brought to the attention of the proponent by an Indigenous group or another party during construction, the proponent would be required to: • immediately halt work at the

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
			location of the discovery; • delineate an area of at least 30 m around the discovery as a no-work zone. The no-work requirement does not apply to action(s) required to be undertaken to protect the integrity of the discovery; • have a qualified individual conduct an assessment at the location of the discovery; • inform Indigenous groups within 24 hours of the discovery, and allow for monitoring by Indigenous groups during work related to the discovery; and • comply, in consultation with Indigenous groups and relevant authorities, with all applicable legislative or legal requirements and associated regulations and protocols respecting the discovery, recording, transferring and safekeeping of previously unidentified structures, sites or things of historical, archaeological, paleontological or architectural significance.
Naskapi Nation of Kawawachikamach, Nation Innu Matimekush-Lac John	Concern about the visual disturbance (e.g. dust, stockpiles, infrastructure) and noise, and its potential impact on traditional practice at	The proponent noted that the Project should not affect the mountain itself, including its geology or stability. However, increased traffic and human presence around the Project, in addition	The Agency is proposing conditions that would help mitigate visual or auditory disturbance to users of Kauteitnat and would require the proponent to:

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	Kauteitnat as a result of the Project. Requested that if the views from Kauteitnat are obstructed by the Project, mitigation measures should be in place to avoid such obstruction and enable pursuit of traditional activities.	to activities which would increase noise, light and dust have the potential to interact with Kauteitnat by altering viewscapes from the mountain and also when looking at the mountain. The proponent proposed the following mitigation measures to reduce the Project's potential effects on Kauteitnat: • announce planned blasting activities on the local radio station two days ahead of time and collaborate with local Indigenous groups to adapt mining activities to allow Indigenous groups to practice traditional activities on Kauteitnat in a noise-free environment; • do not undertake mining activities directly on Kauteitnat; and • install signs identifying a 500 m buffer zone between the foot of Kauteitnat and all mining infrastructure and activities.	• design the waste rock pile and overburden stockpiles using a qualified individual and in consultation with relevant authorities and Indigenous groups, and in consideration of reducing effects on viewscapes; • refrain from blasting for a period of 24 hours, if requested by Indigenous groups, 48 hours prior to their planned use of Kauteitnat, or less if Indigenous groups are no longer using Kauteitnat; • ensure that during the months of June, July, August, and September, blasting is not conducted more than twice in a week and more than five times in a month; • restrict project activities within an exclusion zone of 500 m from the foot of Kauteitnat. Further, the proponent would be required to clearly identify the exclusion zone with signage posted at the edge of the exclusion zone; and • if noise complaints are received, implement corrective actions to reduce the effects from noise, such as reducing drilling speed or using a noise shroud and mobile noise screen, or equivalent technology, around drills during operation.

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
			Following project decommissioning and closure, much of the disturbance associated with the Project to users of Kauteitnat would cease (e.g. light, noise, and presence of personnel).
Current Use of Lands and Resources for Traditional Purposes			
Naskapi Nation of Kawawachikamach, Nation Innu Matimekush-Lac John	Concern that the removal of an existing access road and restrictions to access within the project footprint could result in changes to traditional practices through loss of access (travelways) to areas used for hunting, trapping, gathering and fishing. Recommend providing a bypass road west of the project site to enable access to the area northwest of Schefferville.	To mitigate the loss of access from the Project, and to reduce the burden currently placed on users by existing mining activities, the proponent has upgraded an existing road which allows users to bypass the project area and access lands used for traditional activities, such as Kauteitnat, Pinette Lake, and the Howells River Valley. Due to the resulting increase in commute time and distance of the bypass road, by 16 km and 15-30 minutes, respectively, the proponent committed to contributing to a compensation fund so that land users can recover additional expenses. In addition to the bypass road around the Project, the proponent also committed to restoring previously lost access to preferred hunting grounds northwest of the project area, beyond the DSO4 mining area. The proponent would upgrade and maintain both access roads, but would not assume ownership of the roads.	In conjunction with and in addition to the mitigation proposed by the proponent, the Agency is proposing the following potential conditions related to ensuring access by Indigenous groups to land and resources for traditional purposes: • ensure that the bypass road, which would allow traditional land users to circumvent the project area and access areas used for traditional activities (e.g., Pinette Lake, Kauteitnat, and the Howells River valley), is maintained for the entire life of the Project and is provided without a requirement to wait at a security gate for a security escort; • upgrade, prior to the start of construction, and maintain, until the end of decommissioning, a route for users to bypass the DSO4 area (also referred to as the Kivivic and Goodwood mining sector) and restore access to preferred hunting grounds northwest of the Project; • ensure that the bypass roads not be used for transportation of ore

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		At the end of the life of the Project, the proponent would, subject to regulatory requirements, divest ultimate decision making power with respect to the final disposition of roads, bridges and other access.	or any other project activities besides routine upgrading and maintenance of the bypass road itself; and • develop and implement a communications plan with Indigenous groups to ensure Indigenous groups are regularly kept informed and can provide feedback on key issues related to the Project.
Naskapi Nation of Kawawachikamach, Innu Nation	Concern about the length of time required and the ability of the proponent to restore the site following the cessation of mining operations, in particular to revegetate to a point where traditional activities can occur. A study on restoration should be carried out in consultation with affected Indigenous groups. Concern related to the introduction of non-native invasive species in undertaking revegetation of the project site.	The proponent stated that it is committed to restoring the project area to its original form and would undertake progressive restoration, with the involvement of Indigenous groups, as per Impact Benefit Agreement commitments. The site would be revegetated with suitable local plant species. However, the process of restoration is difficult due to the Project location (notably climate and soil conditions), and as such the proponent is seeking research program partnerships with governments and research institutes to support the future closure plan. The proponent considers the potential for invasive species colonization to be very low. Historic mining in the Schefferville area has not resulted in the	Although the proponent committed to rehabilitating the site as feasible, the Agency notes that the landscape would be permanently altered and waste rock piles would not likely revegetate for many years due to challenges associated with local conditions. The Agency is proposing a potential condition in relation to restoration that would require the proponent to undertake progressive reclamation, including rehabilitating overburden stockpiles and waste rock piles by ensuring stabilization, proper compaction of material, and attempting re-vegetation with native plant species.

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		establishment of invasive species even though there are several areas of disturbed environment. Furthermore, the machinery used during the different phases would be local, thus reducing the risk for bringing invasive plants on site. Site restoration would be carried out with plant species that are present regionally. Monitoring would be performed during the ongoing ecological restoration of disturbed sites.	
Naskapi Nation of Kawawachikamach, Innu Nation	Concern that the Project could alter the distribution and quality of harvested resources, particularly geese and mammals, as a result of habitat disturbance. Recommend that the proponent contribute to a compensation fund for loss of the ability to practice subsistence activities.	The proponent outlined that in addition to hunting caribou (separate response provided) both the Naskapi and the Innu hunt game birds and other mammals in the local study area and beyond. Waterfowl and game bird hunting occurs at many of the lakes in the area, including Rosemary, Pinette, and Triangle Lakes. For the most part, hunting of waterfowl by the Naskapi is favored along the Howell's River Valley and not within the project area. The preferred hunting areas for the Innu are around Rosemary Lake. The proponent predicted that waterfowl may avoid the project area during migration or breeding periods. However, Rosemary Lake is far enough from the Project that noise disturbance would not affect waterfowl hunting.	Although the Project may cause residual effects to waterfowl and other harvestable species, the Agency is of the view that these effects would not sufficiently affect local populations to impact Indigenous peoples' ability to harvest these resources. The Agency is proposing a number of potential conditions that would mitigate potential effects of the Project on species harvested by Indigenous people. Mitigation measures to reduce effects on fish and fish habitat and migratory birds, such as treating water prior to release and conducting the Project in a way that does not harm migratory birds, would reduce the effects on those harvested species. In addition, mitigation measures to reduce dust generation, such as spraying roads, developing a

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		The proponent committed to contributing to a compensation fund for traditional activities (in addition to the compensation fund associated with the bypass road), to be specified in each Impact Benefit Agreement between the Indigenous groups and the proponent. With respect to the quality of country food, the proponent stated that it would also conduct a country food sampling program two years after commencement of the operation phase and subsequently every five years during the operation phase. In addition, a complaint procedure would be established through the Health, Safety, and Environment Committee if concerns are expressed about effects of the Project on country food quality and/or taste.	dust management strategy to control dust generated by vehicles, and properly designing waste rock piles and overburden stockpiles, would reduce dust deposition onto plants, wildlife and the general environment.
Naskapi Nation of Kawawachikamach, Innu Nation	Concern about the effects to traditional caribou hunting caused by light pollution. Requested that the proponent assess these effects in detail, including collecting light measurement data throughout the calendar year and during varying weather events, and consider alternative energy sources for lighting and	The proponent hired an expert to consider potential effects from lighting from mining operations on caribou. The proponent's assessment determined that limited documentation exists on the potential sensory disturbances on caribou from lighting at mining operations. The proponent predicted that effects from lighting would be most notable	The Agency is satisfied with the proponent's response. The Agency is proposing a potential condition that would ensure that the proponent control lighting required for the construction, operation and decommissioning of the Project, including direction, timing, and intensity, to avoid adverse effects on wildlife, while meeting health and safety requirements.

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	mitigation measures such as dimmers and timers.	during the site preparation and construction phase and that effects would be minimal during operations, as most activities would occur during the day with limited activities occurring over the winter months when the nights are long. In addition, ore processing activities would occur at the existing DSO plant complex. Furthermore, the proponent confirmed that directional, shielded lighting (oriented to a specific area) with longer wavelengths would be used to reduce the effects from light.	
Naskapi Nation of Kawawachikamach	Concerns regarding effectiveness of mitigation measures and monitoring for the George River Caribou Herd.	To assess the effectiveness of mitigation, the proponent stated that caribou would be monitored using telemetric data, under an agreement with the Ungava Project and the CircumArctic Rangifer Monitoring and Assessment Network. The proponent indicated that it is open to conducting additional aerial surveys of caribou and would work with authorities to complete follow up action, as required, to reduce any risk or nuisance to caribou.	In addition to the mitigation prescribed by the proponent, the Agency is recommending the following potential conditions: • consult the Newfoundland and Labrador Department of Fisheries and Land Resources if the proponent is made aware of or observes caribou within a 20 km radius of the active pit or of the Howse mini-plant, to determine the appropriate course of action; and • develop and implement, in consultation with Indigenous groups and the Government of Newfoundland and Labrador, a follow-up program to verify the

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
			accuracy of the environmental assessment as it pertains to the adverse effects of the Project on the George River Herd of migratory caribou. As part of the follow-up program, the proponent would be required to monitor movement of the George River Caribou Herd and develop and implement modified or additional mitigation measures if their range expands beyond its current area and occupies the site of or areas around the Project.
Health and Socio-Economic Conditions of Indigenous Peoples			
Naskapi Nation of Kawawachikamach, Nation Innu Matimekush-Lac John	Concern about the Project and cumulative effects to human health from inhalation of particulate matter and contaminants. Noted that existing mitigation measures to improve air quality in the area are unsatisfactory and that additional measures must be implemented.	The proponent modelled dust and associated risks from inhalation using Health Canada guidance for contaminants for which a specific inhalation toxicity effect has been documented (arsenic, beryllium, and chromium). Releases of airborne particulate matter at sensitive receptors (workers' camp, Kauteitnat, and at seven nearby Indigenous camps) beyond the property line are predicted to exceed air quality assessment criteria; however, these exceedances would be for short durations and would occur very infrequently (less than one percent of the time), if they were to occur at all. The proponent predicted that these	The Agency agrees with the proponent that potential residual effects to Indigenous peoples' health from project-related changes to the environment, including changes to country foods, water, and soils, would likely be low and notes that Health Canada was satisfied with the proponent's assessment and conclusions. The Agency also agrees that human health risk from inhalation of dust or airborne contaminants originating from the Project itself would also likely be low. The Agency acknowledges that issues related to air quality are of utmost concern to local Indigenous groups given the existing conditions and issues

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		exceedances would generally be at locations in close proximity to the boundary of the project footprint and that site specific monitoring of fugitive dust would have the greatest impact of reducing uncertainty around the inhalation risk estimates. In consideration of cumulative effects, air modelling results indicated that no exceedances of assessment criteria are predicted for dustfall, metals, or volatile organic compounds and air quality criteria would be met at the nearest towns (Schefferville, Matimekush, Lac John, and Kawawachikamach). The proponent stated that it would implement mitigation measures to reduce dust generation from project activities, including: • minimize the number and size of cleared areas that are left bare and exposed to the elements; • avoid storing excavated material on steep slopes and ensure they are properly compacted to prevent wind erosion of waste rock and overburden piles; • use a water-spraying system at conveyor transfer and drop points; • mix the ore with water in the drum scrubber;	associated with dust generation and dust events during dry periods. Although the acute or chronic toxic effects of the dust and dust events may be of relatively low concern for physiological health, the dust and dust events have an indisputably serious effect on the well-being and day-to-day life of individuals in the region. Given the existing conditions, the Project's contribution to dust generation and dust events, however small, would contribute to cumulative effects and is of concern to the Indigenous groups in the area. The Agency is proposing conditions that would address dust generation and atmospheric emissions, and subsequently effects on human health, including: • application of dust suppressants to the Howse haul road and the road between the Project and the town of Schefferville to reduce dust generation; and • development of a dust management strategy to control dust generated by vehicles, which could include washing vehicles prior to leaving the DSO project complex and before entering the town of Schefferville.

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		• spray roads with water to reduce dust emissions during dry periods • ensure construction equipment is maintained and complies with regulations to reduce emissions and noise; • use dust extractors with filter bags to control dust emissions at the crude ore recovery tunnel, the secondary crusher and the dryer; and • provide financial, technical, and administrative support to construct a vehicle wash bay at the entrance to the town of Schefferville to prevent cumulative nuisance dust from vehicles (i.e. not just those of the Howse Project).	Additional measures, including those to reduce and manage dust generation during blasting and ore processing, reduce and manage blast generated nitrogen dioxide, and reduce traffic between the Project and Schefferville, would also reduce the effects of the Project on the atmospheric environment. The Agency notes that some of the proposed dust mitigation measures for the Project would naturally extend to other projects, potentially reducing the cumulative effects. For example, the requirement for the proponent to develop and implement a dust management strategy to control dust generated by vehicles, which could include spraying the road between the Project and the Town of Schefferville and washing vehicles before entering town, would likely help reduce the cumulative effects from dust generation. To address cumulative effects on the health of Indigenous peoples specifically, the Agency is proposing a condition requiring the proponent to participate in any regional initiative relating to the monitoring and

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
			management of cumulative environmental effects likely to result from the Project in combination with other activities, including cumulative health effects and/or effects related to dust generation. In addition to the mitigation measures, the proponent would also be required to develop a follow-up program related to air quality and human health. The follow-up program would include monitoring dustfall at locations potentially affected by the Project, which may include monitoring dustfall within the town of Schefferville. This program would be undertaken in conjunction with the proponent's communications plan, which would require the proponent to share information related to the Project with Indigenous groups and give Indigenous groups an opportunity to provide feedback and understand how the proponent has attempted to address any issues raised.
Innu Nation	Concerns about the Project's effects to air quality from nitrogen oxides (NOx) released into the natural environment from blasting. Requested that the proponent	The proponent predicted that nitrogen oxide emissions would be manageable. The proponent stated that it would develop a nitrogen oxide management plan that takes into account the likely causes of nitrogen oxide gases from blasting. This would include	The Agency notes that the proponent's predicted air quality exceedances in relation to nitrogen oxides and particulates would occur very infrequently (less than 1% of the time). Additionally, the proponent stated that the modeled predictions

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	provide a detailed plan for the prevention and management of blast-generated nitrogen oxides, including methods, protocols, specific mitigation measure, and use of best technologies.	implementing possible control measures to prevent or minimize blast generated nitrogen oxides and managing the nitrogen oxide gases from blasting should they occur. The plan would also require an evaluation of wind direction and meteorological conditions prior to blasting.	used worst-case scenarios which can be considered conservative (i.e. the models likely overestimated the short-term effects on air quality). The Agency is proposing a potential condition that would require the proponent to develop a follow-up program to verify the accuracy of the environmental assessment as it pertains to air quality and to determine the effectiveness of the mitigation measures. As part of this program, the proponent would be required to monitor air quality at sensitive receptors, including periodically monitoring nitrogen oxides after blasting activities. If required, the proponent would have to implement additional or modified mitigation measures.
Naskapi Nation of Kawawachikamach, Nation Innu Matimekush-Lac John, Innu Nation	Request for monitoring dust emissions to ensure that mitigation is effective and predictions are accurate.	The proponent stated that it would monitor activities related to air quality to validate its predictions as follows: • implement an ambient air quality monitoring plan that includes the use of mobile monitoring equipment that can be moved to sensitive points (at communities or elsewhere) to measure and document ambient air quality levels, including dustfall; • monitor air quality and dust in the	The Agency acknowledges that issues, including physiological health, related to air quality are of utmost concern to local Indigenous groups given the existing conditions and effects associated with dust generation and dust events during dry periods. The Agency is proposing as a potential condition that the proponent be required to develop, prior to construction and in consultation with

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		Town of Schefferville and at the workers' camp; • monitor dust at strategic locations using a dust tracking system, which could include measuring dust emissions during crew changes every two weeks and at the crossing between the mine access road and the train station road; and • maintain blast records and continually review blast designs. Furthermore, the proponent committed to applying various adaptive management strategies if monitoring results suggest the need for additional action.	Indigenous groups and relevant authorities, a follow-up program to verify the accuracy of the environmental assessment as it pertains to air quality and the effects of dust on the health of Indigenous people and to determine the effectiveness of the mitigation measures. As part of the follow-up program, the proponent would be required to: • monitor air quality at sensitive receptors; • monitor dust generation and deposition at locations potentially affected by the Project, using a dust tracking system and mobile monitoring equipment; • analyze concentrations of contaminants of concern in dust, including heavy metal content; and • implement modified or additional mitigation measures if the results of the follow-up program demonstrate that modified or additional mitigation measures are required.
Naskapi Nation of Kawawachikamach	Concern about the project's effects to drinking water.	The proponent predicted that the human health risk from water consumption would be negligible because there would be no anticipated effect on surface water quality from the Project. It stated that effluent from the	The Agency, informed by advice received from Health Canada, agrees with the proponent's assessment of potential effects to Indigenous peoples' health from project-related changes to the environment, including

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		settling pond would meet regulatory discharge standards through all phases of the Project. The proponent also considered dermal contact with surface water as an exposure pathway (e.g. from swimming in nearby lakes) and concluded that there would be a negligible and non-discernable risk associated with this pathway.	changes to water quality. Taking into account the mitigation measures proposed, including the use of sedimentation ponds to treat surface water, the Agency is of the view that risks to human health through pathways associated with consumption of or contact with water would be low. The proponent would also be required to monitor effluent quality and water quality within any waterbodies downstream of the Project, and report its findings to relevant authorities and Indigenous groups.
Greenhouse Gas Emissions			
Naskapi Nation of Kawawachikamach	Concern about the Project's potential greenhouse gas emissions and contribution to climate change, which could affect the ice-free period in the region subsequently disturbing the permafrost layer. Noted that the proponent has no measures specifically aimed at reducing project-related greenhouse gas emissions. Requested that the proponent produce an action plan to reduce its emissions, including an evaluation of alternative	The proponent calculated that the Project would emit 67 000 tonnes of CO_2e per year, which the proponent calculated to be about 0.7% of Newfoundland and Labrador's total CO_2e emissions in 2013. The proponent committed to the following standard mitigation measures to reduce greenhouse gas emissions: • limit the use of dryers in the mini-plant to reduce fuel consumption; • construct the mini-plant near the rail loop to reduce the ore transport distance, which would reduce vehicle emissions; and	The Agency notes that the Project would produce more than 50 000 tonnes CO_2e per year, and as such the proponent would be required to report its emissions annually to Environment and Climate Change Canada. The primary contribution of the Project to direct greenhouse gas emissions would be from operation of the mini-plant (87%). The Agency notes that the proponent has committed to developing a greenhouse gas action plan once the Howse mini-plant is fully operational so further mitigation measures can be based on accurate

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
	energy supply sources or a commitment to offset emissions, and that the proponent provide more information on the annual greenhouse gas emissions for all project phases and activities.	• minimize vehicle idling. In addition to these measures, the proponent committed to developing a greenhouse gas action plan once the Howse mini-plant is fully operational so further mitigation measures can be based on accurate emissions data. The proponent considered the use of solar panels and wind power, but climate (northern region) performance issues and costs were factors that made these options unfeasible.	emissions data.
		Cumulative Effects	
Nation Innu Matimekush-Lac John, Innu Nation	Concern about the Project's cumulative effects to land and resource use for traditional purposes.	In its cumulative effects assessment, the proponent included analysis of the potential effects from past, present and anticipated future projects, including other mining activities in Northern Quebec and Labrador on the current use of lands and resources by Indigenous peoples. To accommodate for any effects to access as a result of the Project and to address cumulative effects on access from the Project in combination with other activities in the region, the proponent committed to restoring access to preferred hunting grounds northwest of the project area. This mitigation measure would include upgrading an existing road and maintaining it twice annually for the	The Agency agrees with the proponent's assessment that the Project would not likely influence regional populations of wildlife, including caribou, fish or other resources that could in turn impact subsistence and traditional activities, nor would any potential risks to human health from Project-related effects to the environment limit Indigenous peoples' ability to safely consume country foods. However, modification or avoidance of traditional and subsistence practices in areas affected cumulatively by mining practices, including those areas that could be affected by the Project, is likely to occur based on the overall desirability

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		duration of the Project. This would allow users to bypass the DSO4 area (Kivivic and Goodwood mining sector) and result in unimpeded access to lands which were previously used by Indigenous people. The proponent does specify that it would not assume ownership of this road beyond the agreement to maintain it regularly. Furthermore, post-operation, subject to regulatory requirements, the proponent would divest ultimate decision making power with respect to the final disposition of roads, bridges, and other access infrastructure and progressively restore the site to a state where it can be used by Indigenous people for traditional/subsistence activities.	of harvesting and consuming country foods at these locations. Furthermore, the Agency acknowledges that losing the ability to practice traditional activities over a period of time can disrupt the transmission of culture and traditional practices among generations. The Agency is of the view that the requirement to provide continued access to areas that would otherwise be affected by the Project, as well as re-opening access to areas formerly used for traditional and subsistence practices, would reduce the Project's contribution to potential cumulative effects on subsistence and traditional activities as it would provide additional options for land users to conduct these activities. Measures to reduce dust generation and dust events would also reduce the Project's contribution to cumulative effects on subsistence and traditional activities. In addition, the requirement to conduct a country foods sampling program and share information collected through this program would help alleviate some of the concern that resources may have become contaminated from mining activities in the area.

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
			The Agency has also proposed as a potential condition that the proponent would be required to participate in regional initiative(s), if requested by a relevant authority, relating to the monitoring, assessment and management of cumulative environmental effects, should there be any such initiative(s) during the construction and operation phases of the Project.
Nation Innu Matimekush-Lac John, Innu Nation	Concern about the cumulative effects from mining operations on the George River Caribou Herd. Recommended that a strategic environmental assessment and land use plan be developed to increase caribou conservation efforts in the region and requested support for an independent working group backed by government authorities.	The proponent estimated that the Project would result in 707 km^2 (equivalent to the local study area) of habitat being indirectly lost through anthropogenic disturbance, translating to approximately 0.1% of the George River Caribou Herd's range. The proponent stated that since 2009, caribou sightings within the local study area (a 15 km radius around Howse) have been rare (seven animals total from focused surveys). The areas currently used by the George River Caribou Herd are located far from the traditional hunting grounds and the herd has increasingly occupied areas to the northeast as the population has contracted. Despite the high cultural value of caribou harvesting to the Innu and	The Agency concluded that the George River Caribou Herd would not be adversely affected by the Project unless the herd reoccupies portions of its historic range closer to the project area, in which case the Project has the potential to modify or limit preferred hunting locations. The Agency believes that should the herd recover during the life of the Project, caribou may avoid the project area and up to 20 km around the Project due to ongoing disturbances from operations. This alteration of the landscape and disturbance from the Project could contribute to a cumulative effect on caribou and caribou hunting. The Agency is proposing conditions that would require the proponent to

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		Naskapi, the proponent stated that because of the population decline and change in distribution, it is unlikely that subsistence caribou hunting would occur during the life of the Project within the study area whether or not the Project proceeds. The proponent indicated that it expects that the status George River Caribou Herd would not be altered by the Project. The proponent stated that while it is possible that mining activity may be contributing to the decline of the George River Herd, like the decline of other caribou herds across North America, the causes are generally unknown and are commonly partially attributed to habitat loss and/or climate change factors. The proponent committed to contribute financially to the Caribou Ungava project to advance research on caribou and on the effects of mining activities on the George River Caribou Herd decline. This project provides opportunities for collaboration with concerned Indigenous communities on research initiatives. With respect to the need for a regional strategic approach to increase caribou	monitor caribou and implement mitigation measures as directed by the province of Newfoundland and Labrador. If the George River Caribou Herd appears to be reoccupying portions of its historic range closer to the project area, the proponent would also be required to develop additional adaptive management measures in consultation with appropriate government authorities. Furthermore, the project area would be rehabilitated to support caribou habitat, to the extent possible. The Agency also acknowledges the proponent's commitment to continue to contribute to the Caribou Ungava project, which is a multi-stakeholder initiative to better understand the various pressures on caribou populations in Labrador and Quebec and help develop measures to protect the species.

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
		conservation efforts, the proponent stated that this request would need to be assessed through a strategic environmental assessment that would involve both Quebec and Newfoundland and Labrador governments. It is the proponent's view that this is outside of the scope of the environmental assessment for the Project.	
Nation Innu Matimekush-Lac John, Innu Nation, Naskapi Nation of Kawawachikamach	A comprehensive framework for preventing, managing and monitoring the cumulative effects of mining development in the region should be established.	The proponent considers a regional strategic approach to cumulative effects to be outside of the scope of the present environmental assessment.	The Agency agrees with the proponent that a regional strategic approach to cumulative effects of development in Labrador is beyond the scope of this particular environmental assessment. However, The Agency has also proposed as a potential condition that the proponent would be required to participate in regional initiative(s), if requested by a relevant authority, relating to the monitoring, assessment and management of cumulative environmental effects, should there be any such initiative(s) during the construction and operation phases of the Project.
Other Effects – Accidents and Malfunctions			
Naskapi Nation of Kawawachikamach	Concern about potential fires at the mine site that could impact the community. Concern about the risk associated with having only one explosive storage facility for all	The proponent predicted a moderate likelihood of a fire at the mining complex, but as it is located in a large cleared area, the consequence would be negligible. While the proponent considered the	The Agency agreed with the proponent's assessment and commitments to take all reasonable measures to prevent accidents and malfunctions that may result in adverse environmental effects.

Indigenous Group	Comment or Concern	Summary of Proponent's Response	Agency Response
	mining operations in the area and the potential consequences of accidents and risk of fire.	worst-case scenario, detonation of a full operation phase explosives magazine would be extremely unlikely. The proponent concluded that the Project's isolated location away from other facilities would ensure that no environmental effects would be observed.	The Agency also proposed a potential condition that would require the proponent to consult with Indigenous groups and relevant authorities, prior to construction, on the measures to be implemented to prevent accidents and malfunctions and to develop an emergency response plan.

Appendix G Comments on the Draft Environmental Assessment Report

Key comments received on the draft Environmental Assessment (EA) Report are summarized in the table below. Editorial-related comments and comments that identify basic errors in the draft EA Report have been addressed in the final EA Report and are not included in this table.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
Naskapi Nation of Kawawachikamach, Nation Innu Matimekush-Lac John	Bypass Road	Concern with the general location and safety of the bypass road around the DSO 4 area; concern that the proponent does not maintain the road to an acceptable condition for local communities.	The Canadian Environmental Assessment Agency (the Agency) has proposed conditions that would require the proponent to upgrade the bypass road from the start of construction and maintain the bypass road at least twice per calendar year until the end of decommissioning. The proponent shall not use any bypass road except if required for safety or emergency reasons or to conduct maintenance. The proposed condition related to the follow-up program for the current use of lands and resources for traditional purposes was expanded to include a specific reference to bypass road maintenance. Indigenous groups will also have the opportunity to	No modification required.	Condition 6.6 has been updated.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			provide input into the development and participate in the implementation of the follow-up plan.		
Naskapi Nation of Kawawachikamach, Nation Innu Matimekush-Lac John, Innu Nation	Air Quality	Concerns related to project emissions. Would like additional monitoring locations included that are close to communities and near workers accommodations.	The Agency has revised the proposed conditions to include Kawawachikamach, Matimekush (town), and the workers' camp as monitoring locations in the air quality monitoring program.	No modification required.	Proposed conditions 5.9 and 5.9.1 have been updated.
Nation Innu Matimekush-Lac John	Air Quality	Concern over air quality and dust. Ensure the follow-up programs for air quality monitoring are sufficient. Concerns that the trucks and trains carrying ore are not covered and contribute to the air quality issue.	The Agency considered potential effects of the Project, including effects on health and socio-economic conditions of Indigenous groups, and proposed mitigation measures that would be implemented by the proponent to control dust emissions. The Agency proposed several conditions related to dust and air quality, such as the requirement to spray roads with dust suppressant, progressively reclaim disturbed areas, develop and implement a dust management strategy,	Information added to Section 7.4 and Appendix D (Health and Socio-economic Conditions of Indigenous Peoples).	Proposed condition 5.4 was added.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			and develop and implement an air quality monitoring program. The Agency added a proposed condition to require that the proponent cover trucks that transport ore on the Howse haul road.		
Naskapi Nation of Kawawachikamach, Nation Innu Matimekush-Lac John	Water Management Plan	Concern with sedimentation pond and ditch failure. Requested that the proponent commit to ensuring sedimentation ponds and ditches perform their intended job and undertake inspections at the onset of the Project and periodically in order to verify there is no sign of failure. Indicated that the proponent needs to be held accountable for the conduct of contractors.	The Agency considered the potential effects of accidents and malfunctions and proposed follow-up and mitigation measures that would address these potential effects. Conditions have been proposed that would require the proponent to take all reasonable measures to prevent accidents and malfunctions that may result in environmental effects. The conditions include specific reference to measures to prevent slope, sedimentation pond, and ditch failures. Proposed conditions would also require the proponent to develop and implement an accident and malfunction	No modification required.	Proposed condition 9.1 has been updated.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			response plan, and review and update the measures to be implemented in consultation with Indigenous groups and relevant authorities. Any contractors working for the proponent would also need to comply with any legally binding conditions.		
Nation Innu Matimekush-Lac John	Participation in Follow-up Programs	Request assurance that the community would be provided the opportunity to participate and oversee measures related to the follow-up plans and be allowed access to the site to conduct inspections (i.e. request opportunities for co-monitoring).	The following proposed conditions would require the involvement of Indigenous groups in the follow-up programs: • all follow-up programs identified in the proposed conditions require the proponent to consult with Indigenous groups when updating the programs; • proposed general conditions require follow-up programs to identify the methodology, location, frequency, timing, and duration of monitoring associated with the follow-	No modification required.	No modification required.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			up program; and • proposed general conditions also would require the proponent to discuss opportunities for Indigenous groups to participate in the implementation of the follow-up program.		
Naskapi Nation of Kawawachikamach, Nation Innu Matimekush-Lac John, Innu Nation	Caribou	Several comments were submitted which relate to potential project effects or cumulative effects on caribou, including the following: • if the population of the George River Caribou Herd becomes extinct, the effects of the Project would no longer be reversible; • as the George River Caribou Herd recovers, project activities have the potential to modify caribou migration routes and the herd will no longer use the study	The comments were shared with the proponent. The EA Report considered the Project's potential effects on caribou populations and their recovery, as detailed in Section 6.2, and the Agency considered the potential effects of the Project on subsistence and traditional caribou hunting. The Agency is of the view that the Indigenous groups' concerns have been sufficiently considered and that the mitigation measures and follow-up programs proposed would address the potential effects of the Project on	No modification required.	No modification required.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
		area; • support for the proponent's financial contributions to the Ungava Research project; and • concern that the Project would further limit the caribou's recovery and prevent reoccupation of nearby areas.	caribou hunting. The Agency has proposed a condition that would require the proponent to develop and implement a follow-up program related to the George River Caribou Herd (in consultation with Indigenous groups and the Government of Newfoundland and Labrador) that would include monitoring herd movement, and developing and implementing modified or additional mitigation measures if the range expands to occupy areas within a 20 kilometre radius of the Project.		
Naskapi Nation of Kawawachikamach	Caribou	As a partner on the Ungava Peninsula Caribou Aboriginal Roundtable (UPCART), the Naskapi Nation of Kawawachikamach indicated its support of a Caribou Joint Committee. It requested that the proponent supports the	The comment was shared with the proponent.	No modification required.	No modification required.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
		Nation in its efforts with the UPCART.			
Innu Nation	Caribou	Recommended that the follow-up program be designed to include the potential for an updated assessment of the direct and cumulative effects of the Project on caribou and caribou harvesting in the event that caribou return to the region surrounding the Project.	Proposed conditions would require the proponent to develop and implement a follow-up program to verify the accuracy of the EA as it pertains to the adverse effects of the Project on the George River Caribou Herd and to review and update the program in consultation with Indigenous groups and the Government of Newfoundland and Labrador. A proposed condition would also require the proponent to implement modified or additional mitigation measures if the range of the George River Caribou Herd expands within a 20 kilometre radius of the Project.	No modification required.	No modification required.
Naskapi Nation of Kawawachikamach, Innu Nation	Cumulative Effects	Wanted to understand the federal government's responsibility to reduce greenhouse gas emissions.	The federal government is responsible to make decisions related to projects currently being assessed while the	No modification required.	No modification required.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
		Requested that the proponent be required to make reductions to greenhouse gas emissions, in order to contribute to meeting international and national greenhouse gas reduction targets, and that the reduction plan should be developed prior to construction and operation. Also noted that the proponent should specify whether the scope of the greenhouse gas management plan only includes the Project or if it includes all of Tata Steel Mineral Canada Ltd.'s mining operations. The proponent should also indicate if it is willing to offset these emissions.	review of the EA process is underway. In the interim, project reviews are continuing within the current legislative framework. Interim principles to guide EA include that: no projects will be required to return to the starting line; decisions will be based on science, traditional knowledge of Indigenous peoples, and other relevant evidence; the views of the public and affected communities will be sought and considered; Indigenous peoples will be meaningfully consulted and, where appropriate, impacts on their rights and interests will be accommodated; and direct and upstream greenhouse gas emissions linked to projects under review will be assessed. The proponent provided information on potential greenhouse gas emissions. The Project would emit approximately 67 000 tonnes of carbon dioxide equivalent		

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			per year during operation, which is a relatively low amount of greenhouse gas emissions compared to regional and national levels. However, the proponent would still have to report its emissions annually to Environment and Climate Change Canada and has committed to developing a greenhouse gas management plan once the Howse mini-plant is fully operational and further measures can be based on accurate emission data. Environment and Climate Change Canada and the Province of Newfoundland and Labrador reviewed information on greenhouse gas emissions provided by the proponent. With respect to the application of the greenhouse gas management plan to other projects, this comment has been shared with the proponent		

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
Naskapi Nation of Kawawachikamach	Cumulative Effects	Requested that the cumulative effects assessment include the following reasonably foreseeable projects: Tacora Resources' reactivation of the Scully Mine and Commerce Resources' Eldor Project. Table 5 in the EA Report should be updated to include these projects.	Table 5 presents a summary of the past, existing, and reasonable foreseeable physical activities, as identified by the proponent in its Environmental Impact Statement (2015) and through information requests from the Agency. The Agency broadly considered the potential cumulative effects of future mining projects in its analysis and determined that the Project would not result in significant adverse cumulative effects on the current use of lands and resources for traditional purposes or the health and socio-economic conditions of Indigenous peoples.	No modification required.	No modification required.
Naskapi Nation of Kawawachikamach	Impact Benefit Agreement	The Naskapi Nation of Kawawachikamach does not oppose the notion of the advancement of the Project; however, it will actively oppose it if the proponent fails to honour	The Agency recognizes the importance of the impact benefit agreement as an accommodation for potential adverse impacts to section 35 rights. While an impact benefit agreement cannot be required	No modification required.	No modification required.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
		its commitments regarding obligations towards the Nation and its commercial subsidiaries on past mining operations. The Nation and the proponent have agreed to incorporate the DSO project and the Howse Project under the same impact benefit agreement Tata Steele Minerals Canada Ltd. must first honour its commitments and negotiate in good faith the terms of a consolidated agreement covering both projects.	as part of the EA, the Agency has forwarded the Naskapi Nation of Kawawachikamach's comments to the proponent. As well, the Agency has pointed to the implementation of an impact benefit agreement as a potential accommodation measure in the EA Report.		
Naskapi Nation of Kawawachikamach	General Comments	Supportive of a communication plan as outlined in the Agency's draft Report.	Comment shared with the proponent. Proposed conditions would require the proponent to develop a communication plan in consultation with Indigenous groups, and implement and maintain the communication plan during all phases of the	No modification required.	No modification required.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			Project.		
Naskapi Nation of Kawawachikamach	General Comments	Clarification requested regarding the following commitment made by proponent (page 63 and 132 of draft EA Report): "maximize the presence of Indigenous personnel for all security shifts to facilitate communication in Innu with local users. Work with local communities to hold a security course for their members, so that there can be additional Innu personnel at the security post". The Nation is wondering why Naskapis are excluded and if their members would also be given the opportunity to participate in the security course and be employed at the security post?	The proponent clarified that the security contract has a provision to hire local French-speaking Indigenous peoples to facilitate communication in French. This measure favours hiring French-speaking people, regardless of whether they are Innu or Naskapi. As the Innu people's second language is generally French, this condition is more applicable to hiring them; however, it is not intended to exclude Naskapi. The proponent indicated that it is committed to maximizing the presences of all Indigenous personnel for security shifts to facilitate communication with local land users. The proponent has worked with local communities to hold a security course for their community members (both Naskapi and Innu), so that there can be additional Indigenous	Text on page 63 of the EA Report was modified to reflect the clarification from the proponent.	No modification required.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			personnel at the security post.		
Naskapi Nation of Kawawachikamach	General Comments	Concern that measures should be implemented to confirm the presence of permafrost and that the proponent consider installing inclinometers as a precautionary measure.	The proponent committed to installing thermistor cables up to 20 metres in depth in locations identified as the highest potential for permafrost. Thermistor cables measure temperature, and would be able to detect the presence and the depth of permafrost. The proponent committed to install inclinometers if the presence of permafrost is confirmed at the waste dump and/or stockpiles. Proposed conditions would require the proponent to take all reasonable measures to prevent accidents and malfunctions that may result in environmental effects. The conditions were expanded to include specific reference to measures to prevent destabilization of waste rock piles and overburden	Information was added to Section 8.1 and Appendix D (Accidents and Malfunctions).	Proposed conditions 9.1 and 9.2 have been updated.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			stockpiles and rock slides that could result from melting of permafrost.		
Naskapi Nation of Kawawachikamach, Nation Innu Matimekush-Lac John	Archaeology	The communities are concerned that they were not given sufficient opportunities to conduct preliminary archaeological work. Suggested that employees of the mine be trained, if clearing land, on how to identify archaeologically significant sites and objects.	As noted in Section 7.3 of the EA Report, the Agency believes that the archaeological research and historic resource assessments conducted by the proponent in 2008 and 2014 were sufficient to gain an understanding of the archaeological significance and potential of the project area, and notes that no prehistoric sites were identified within the project footprint. Proposed conditions would require the proponent to develop and implement a cultural heritage control plan. The plan is to be reviewed and updated in consultation with Indigenous groups.	No modification required.	No modification required.
Innu Nation	Wetland Follow-up Program	Requested identification of potential triggers for wetland supplementation in the event that dewatering	The Agency has proposed a condition that would require the proponent to develop and implement a follow-up	No modification required.	No modification required.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
		is determined to have an adverse effect on wetland water levels.	program to verify the accuracy of the EA as it pertains to the adverse environmental effects of the Project on wetland functions that support migratory birds. Proposed general conditions also require that follow-up program requirements determine a level of environmental change relative to baseline conditions that would require the proponent to implement modified or additional mitigation measures.		
Innu Nation	Wetland Compensation	Asked if wetland compensation is being contemplated.	Based on advice from Environment and Climate Change Canada, and in consideration that altered wetlands do not represent unique or critical habitat for species under federal jurisdiction, it was determined that no compensation would be required.	No modification required.	No modification required.
Nation Innu Matimekush-Lac	Restoration	Indicated that the proponent has yet to	Proposed conditions would require the proponent to	No modification required.	Proposed condition 5.1 has

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
John, Innu Nation		demonstrate that large portions of the mine site can be revegetated within any reasonable period of time or at a cost that the Project is likely to be able to sustain. Communities would like to be involved in the restoration and rehabilitation activities.	progressively return any physically disturbed areas to a state as close to the baseline as possible as soon after the disturbance as practical. The Agency acknowledges that the land will not be used in the same way it may have been used historically. As an accommodation measure, the proponent has committed, and would be required by proposed conditions, to create and maintain a bypass road to provide access to other significant sites and preferred hunting grounds which were previously inaccessible. The Agency also expanded the proposed condition related to progressive reclamation to include consultation with Indigenous groups.		been updated.
Innu Nation, Nation Innu Matimekush-Lac John	Alternative Means	Concern that the alternative means analysis was not sufficient. Specifically, power generation alternatives did	The *Canadian Environmental Assessment Act, 2012* (CEAA 2012) requires that federal EAs of a designated project take into account the alternative	No modification required.	No modification required.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
		not include a wind-diesel or interconnection options. Indicated that the alternative of extracting further ore from existing pits rather than opening a new pit was not sufficiently considered.	means of carrying out the Project that are technically and economically feasible and also consider the environmental effects of any such alternative means. The Agency's Operational Policy Statement Addressing "Purpose of" and "Alternative Means" under CEAA 2012 sets out the general requirements and approach to address the alternative means of carrying out the designated project. The proponent evaluated using wind power, but determined that the costs of implementing a wind power program were not justified given the duration of the Project. The proponent indicated that performance of solar panels in northern regions is not efficient and would be limited to a relatively short period of the year (i.e. summer). The proponent indicated it is investigating the possibility of connecting the Direct Shipping Ore (DSO) site		

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			(including the Howse property) to the Menihek hydroelectric station. The Agency reviewed the proponent's alternative means analysis and determined it to be sufficient for the purposes of this EA. The proponent considered wind-diesel, interconnection, and reuse of pits and indicated it was not technically and/or economically feasible. With respect to exhausting ore extraction from existing pits, the Agency considers that the analysis of this alternative to the Project is beyond the scope of the federal EA. However, in its Environmental Impact Statement, the proponent indicates that the Project is driven by "the availability and quantity of high-quality iron ore at this location. Consequently, there are no viable alternatives to the Project at the macro scale" and that "the only alternative to		

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			the Howse Project is the 'no-build' scenario".		
Nation Innu Matimekush-Lac John	Migratory Birds and Current Use	Concern that helicopters are not being properly managed to avoid disturbance to birds during important hunting seasons.	In its Environmental Impact Statement, the proponent committed to limiting helicopter activity to emergency situations or environmental monitoring, and expects helicopter flying to occur for a maximum of seven cumulative days spread out over the course of a year. The Agency has proposed conditions that would address concerns related to migratory birds and disturbance during important hunting season. Proposed conditions would require the proponent to: carry out the Project in a manner that protects migratory birds and avoids harming, killing or disturbing migratory birds; develop and implement a communications plan in consultation with Indigenous group; and develop and implement a follow-up	No modification required.	No modification required.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			program to verify the accuracy of the EA as it pertains to the adverse effects of the Project on the current use of lands and resources for traditional purposes.		
Naskapi Nation of Kawawachikamach	Current Use	Concern that the number of new workers added to the project will put a strain on local hunting and fishing.	The Agency added a proposed condition that would require the proponent to prohibit employees and contractors associated with the Project from fishing and hunting within the project area unless an employee or contractor is provided access for traditional purposes or for exercising Aboriginal rights, to the extent that it is safe. The proponent also confirmed that hunting, trapping, or fishing by project personnel is not permitted on or off site while under the direct or indirect employment of Tata Steel Minerals Canada Ltd. For those employees who are not from the Schefferville region, this applies to any time that	No modification required.	Proposed condition 6.4 added.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			they are in the region. For local employees, this safety policy is in place to avoid hunting and fishing during working hours.		
Nation Innu Matimekush-Lac John	Health and Socio-economic Conditions	Concern that groundwater contamination was not sufficiently investigated and needs to be more thoroughly included in the water management plan.	Based on advice from Natural Resources Canada and in consideration of the proposed follow-up program conditions that the proponent would be required to implement related to water quality, water quantity and groundwater, the Agency is satisfied that the potential for groundwater contamination was adequately considered and that the potential for adverse effects is low.	No modification required.	No modification required.
Nation Innu Matimekush-Lac John	Health and Socio-economic Conditions	The Agency's conclusions around risks to human health in Section 7.5.3 are invalid without background information on human health status.	The Agency's analysis in Section 7.5.3 of the EA Report concluded that the Project is not likely to result in significant adverse environmental effects on the health and socio-economic conditions of Indigenous peoples after taking into account the implementation of the key	No modification required.	No modification required.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
			mitigation measures identified by the Agency. While baseline information on the health status of the community was not required as part of the EA, baseline information on environmental components that could impact Indigenous health was considered in the assessment. The Agency proposed several conditions that would require the proponent to complete monitoring and follow-up measures related to dust, human health, and country foods, in consultation with Indigenous groups and relevant authorities.		
Howse Minerals Limited	Follow-up Programs in the Decision Statement	Request that consultation with Indigenous groups and relevant authorities on the follow-up programs, as required in the proposed conditions, be conducted within 120 days following the EA Decision rather than	The Agency has proposed conditions that would require the proponent to develop and implement the follow-up programs prior to construction. The Agency modified most of the proposed conditions to allow consultation on the follow-up programs with	No modification required.	Proposed conditions 3.6, 4.7, 4.8, 5.7, 5.9, 5.10, 6.6, 6.7, 7.4, 7.5, 7.6, and 9.3.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
		prior to construction.	Indigenous groups and relevant authorities to occur prior to operation or within 120 days of the issuance of the Decision Statement, whichever comes first. This was done for all relevant proposed conditions, except the requirement to develop and implement a communications plan and to develop a follow-up program to determine the effectiveness of all mitigation measures to avoid harm to migratory birds, their eggs and nests. The Agency is of the view that consultation with Indigenous groups on the development of communications plans and a follow-up program for migratory birds must occur prior to construction.		
Howse Minerals Limited	Blasting	To remove the blast limitation "not more than five times per month" from condition 7.3. This reduction in the frequency of blasts could result in an	The Agency's assessment related to human health, air quality, and current use was completed in consideration of a blasting frequency of once per week during operations.	No modification required.	No modification required.

Source	Subject	Comment or Concern	Agency Response	Changes to the Final Environmental Assessment Report	Changes to Proposed Conditions
		exceedance in the agreed-upon blast charge per delay of 1092 kilograms, which is in place to prevent harm to fish eggs.	Given the potential for an increase in blasting frequency to change the results and therefore the conclusions of this assessment, the Agency is maintaining the proposed condition. In addition, the Agency did not alter the condition that would require the proponent to not set the blast charge per delay to above 1092 kilograms.		